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(Hm.) 18452. $\frac{15}{1864}$

THE

NAUTICAL ALMANAC

AND

ASTRONOMICAL EPHEMERIS

FOR THE YEAR

1864.

PUBLISHED BY ORDER OF
THE LORDS COMMISSIONERS OF THE ADMIRALTY.

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ALPHABETICALLY ARRANGED.

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the small, the Page of the Preface ; and the Arabic, the Page of the Book.*

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P R E F A C E.

THE contents and arrangement of the NAUTICAL ALMANAC AND ASTRONOMICAL EPHEMERIS for the year 1864 are the same generally as those of the preceding year.

The places of the Sun are from LEVERRIER's Tables in "*Annales de l'Observatoire Impérial de Paris, Tome quatrième.*"

The Nutations of the Obliquity of the Ecliptic ($\Delta \omega$) and of Longitude (ΔL), have been computed according to the following formulæ :

$$\begin{aligned}\Delta \omega &= 9'' \cdot 2236 \cos \varpi - 0'' \cdot 0895 \cos 2 \varpi + 0'' \cdot 5507 \cos 2 \odot \\ \Delta L &= -17'' \cdot 2524 \sin \varpi + 0'' \cdot 2063 \sin 2 \varpi - 1'' \cdot 2691 \sin 2 \odot\end{aligned}$$

where ϖ is the mean Longitude of the Moon's ascending Node, and \odot the true Longitude of the Sun. The coefficients are those of Professor PETERS.*

The mean Obliquity of the Ecliptic has been taken $= 23^{\circ} 27' 25'' \cdot 17$, on January 1, 1864, and the mean annual diminution $= 0'' \cdot 476$. (LEVERRIER's Solar Tables, page 203.)

The Semidiameter of the Sun at the Earth's mean Distance $= 16' 1'' \cdot 82$, being the result of the 12 years' Observations, 1836 to 1847, made at the Royal Observatory, at Greenwich.

The Equatorial Horizontal Parallax of the Sun, at the Earth's mean Distance, has been taken $= 8'' \cdot 5776$, as deduced by Professor ENCKE, from the Transits of Venus in 1761 and 1769. (*Der Venusdurchgang von 1769, &c. Gotha, 1824. Page 108.*)

The Constant of Aberration $= 20'' \cdot 4451$. (*Struve, Sur le Coefficient Constant de l'Aberration, p. 47.*)

* The terms depending on $2 \odot$ have been omitted. Digitized by Google

The Sidereal Time at Mean Noon = $\frac{\text{Sun's mean Longitude}}{15} + \text{Nutation in R.A. (in time)}$.

The Sun's mean Longitude for the Paris Mean Time $0^h 9^m 20^s \cdot 63$, or Greenwich Mean Noon of any day in the nineteenth century, is supplied by LEVERRIER'S Tables I., III., IV., and V.

On comparing the Sidereal Time at Mean Noon for January 1 of the present year, with that opposite December 32 of the previous one, a difference will be observed out of proportion to that of the corresponding Longitudes of the Sun. On this subject, M. LEVERRIER writes, that the omission hitherto of many inequalities of very long period, and especially of that which depends on the combined actions of Mars and Jupiter, has not permitted of an exact value being assigned to the Sun's mean Longitude.

The Sun's Geocentric Co-ordinates have been computed from the following formulæ :

$$X = R \cos \odot$$

$$Y = R \sin \odot \cos \omega$$

$$Z = R \sin \odot \sin \omega = Y \tan \omega$$

in which R represents the Radius Vector of the Earth, \odot the Sun's *true* Longitude from the *true* equinox, and ω the apparent Obliquity of the Ecliptic. The reductions to the mean equinox of January 1 have been obtained by substituting the Sun's Longitude from the mean equinox and the mean Obliquity of the Ecliptic of January 1, 1864.

The Longitude, Latitude, Horizontal Parallax, Semidiameter, Right Ascension, and Declination of the Moon at noon and midnight, have been deduced from HANSEN'S Tables.*

The Right Ascension and Declination have been examined by means of differences to the fourth order, and interpolated for every hour. From these have been deduced the Right Ascension and Declination at transit on each day of the year.

The Lunar Distances from the Sun have been computed from Longitude and Latitude for every six hours, examined by means of differences to the second order, and interpolated for every three hours. Those from the Planets and Stars

* Tables de la Lune, construites d'après le principe Newtonien de la gravitation universelle, par P. A. Hansen, Directeur de l'Observatoire Ducal de Gotha. London, 1857. 4to.

have been computed from Right Ascension and Declination for every six hours, examined by means of differences to the second, third, and sometimes fourth order, according to the irregularity of their variation, and interpolated for every three hours.

The places of Mercury have been deduced from LEVERRIER's Tables in "*Annales de l'Observatoire Impérial de Paris, Tome cinquième*," those of Venus and Mars from LINDENAU's Tables,* and those of Jupiter, Saturn, and Uranus, from BOUVARD's new Tables,† substituting only for Table XLII. of Saturn, MR. ADAMS's correct Table given in the NAUTICAL ALMANAC for 1851, page xiv. The places of Neptune are from KOWALSKI's Tables.‡

For Mercury, the Perturbations were obtained from the Tables for each fifth mean noon, and interpolated with second differences; the remainder of the calculations was performed independently for every mean noon.

For Venus, the Heliocentric Longitude, Latitude and Radius Vector, were computed for mean noon of every eighth day, and interpolated with fourth differences for each day. The Geocentric places were computed for every fourth day, and interpolated with fourth differences for each day.

For Mars, the Heliocentric Longitude, Latitude and Radius Vector, were computed for mean noon of every twelfth day, and interpolated with fourth differences for each day. The Geocentric places were computed for every sixth day, and interpolated with fourth differences for each day.

For Jupiter, Saturn, and Uranus, the Heliocentric Longitude, Latitude and Radius Vector, were computed for mean noon at intervals of thirty days, and interpolated, for each day, with second differences. The Geocentric places were

* *Tabulæ Veneris novæ et correctæ ex Theoria Gravitatis clarissimi De Laplace et ex Observationibus recentissimis in specula Astronomica Seebergensi habitis erutzæ. Auctore BERNHARDO DE LINDENAU. Gothæ, 1810. 4to.*

Tabulæ Martis novæ et correctæ ex Theoria Gravitatis clarissimi De Laplace et ex Observationibus recentissimis erutzæ. Auctore BERNHARDO DE LINDENAU. Eisenberg, 1811. 4to.

† *Tables Astronomiques publiées par le Bureau des Longitudes de France, contenant les Tables de Jupiter, de Saturne et d'Uranus, construites d'après la Théorie de la Mécanique Céleste : par M. A. BOUVARD. Paris, 1821. 4to.*

‡ *Recherches sur les Mouvements de Neptune, suivies des Tables de cette Planète, par M. KOWALSKI. Kasan, 1855. 8vo.*

obtained independently for every sixth day, and interpolated for each day, with fourth differences.

For Neptune, the Heliocentric Places were computed at intervals of thirty-two days, and Geocentric ones at intervals of eight days, and interpolated with second differences.

The Semidiameters of the Planets, at the mean distance of the Earth from the Sun, have been adopted as follow :

Mercury,	Eq. Sem.	3' 34"	(Leverrier's <i>Tables of Mercury</i> , page 112).
Venus,	Eq. Sem.	8' 25"	(Delambre's <i>Astronomy</i> , vol. ii. page 620).
Mars,	Eq. Sem.	4' 435"	(Littrow's <i>Astronomy</i> , vol. ii. page 389).
Jupiter,	Eq. Sem.	99' 704"	(<i>Mem. Ast. Soc.</i> , vol. iii. page 301).
Saturn,	Eq. Sem.	81' 106"	(<i>Ast. Nach.</i> No. 189).
Uranus,	Eq. Sem.	37' 25"	(Delambre's <i>Astronomy</i> , vol. ii. page 620).

For Jupiter and Saturn, Polar Sem. = Eq. Sem. \times .927.

The Eclipses of Jupiter's Satellites have been computed from "*Tables Ecliptiques des Satellites de Jupiter, d'après la théorie de leurs attractions mutuelles et les constantes déduites des Observations.* Par le Baron DAMOISEAU. Publiées par le Bureau des Longitudes. Paris 1836," using $9^m 20^s.6$ for the difference of meridians.

For the first Satellite, equations 4 and 5 have been taken from the Tables for every Eclipse, and the other equations for each sixth Eclipse. For the second Satellite, equation 4 has been taken for every Eclipse, and the others for each fourth Eclipse. For the third Satellite, equation 5 has been taken for every Eclipse, and the others for each second Eclipse. For the fourth Satellite, the whole of the equations have been taken from the Tables for each Eclipse. In each case the computation has been finished by interpolating, with second differences, the sums of those equations not taken from the Tables for each Eclipse.

For the Configurations and Occultations of the Satellites, as well as the Transits of the Satellites and their Shadows over the disc of the Planet, Mr. WOOLHOUSE'S Tables in the APPENDIX to the NAUTICAL ALMANAC for 1835 have been used, with the exception of Table II. of each Satellite, which has been reconstructed to adapt it to DAMOISEAU'S New Tables.

The Elements at page 484, for determining the appearance of Saturn's Ring, have been calculated by means of the following formulæ :—

Let Ω represent the mean Longitude of the Ring's ascending Node in the Ecliptic, at the time t .

i , the mean inclination of the plane of the Ring to the Ecliptic.

N , the mean position of the ascending Node in the Equator.

I , the mean inclination to the Equator.

a , the major axis of the Ring at the Planet's mean distance.

ω , the Obliquity of the Ecliptic.

α , the Geocentric Right Ascension

δ , ————— Declination

ρ , the distance from the Earth

λ , Heliocentric Longitude

β , ————— Latitude

r , the *mean* distance from the Sun.

} of the Planet.

Then, adopting the late Professor BESSLER's determinations of the values of Ω , i and a , viz. :—

$$\begin{aligned}\Omega &= 166^\circ 53' 8''.9 + 46''.462 (t-1800) \\ i &= 28 \ 10 \ 44 \cdot 7 - 0 \cdot 350 (t-1800) \\ a &= 39'' \cdot 308 \text{ (} \textit{Ast. Nach.}, \text{No. 275, col. 170),}\end{aligned}$$

And BOUVARD's value of r , viz. :—

$$r = 9 \cdot 54301 \text{ (} \textit{Tables of Saturn})$$

$$\tan \phi = \tan i \cos \Omega$$

$$\tan N = \frac{\sin \phi}{\sin (\phi + \omega)} \tan \Omega \qquad \tan I = \frac{\tan (\phi + \omega)}{\cos N}$$

$$\tan Q = \tan I \sin (\alpha - N)$$

$$\tan p = - \frac{\sin Q}{\cos (Q - \delta)} \cot (\alpha - N) \qquad \tan l = \tan (Q - \delta) \cos p$$

$$\sin l' = \sin i \cos \beta \sin (\lambda - \Omega) - \cos i \sin \beta$$

$$a' = \frac{a r}{\rho} = \frac{[2 \cdot 57416]}{\rho} \qquad b' = a' \sin l$$

$$\alpha'' = \alpha' \times \cdot 665 \qquad b'' = b' \times \cdot 665$$

The Mean Places for January ^{od} 597, 1864, of 84 of the 100 Fixed Stars formerly given, have been derived from a manuscript by MR. ADAMS, and the remaining 16 from the fundamental Catalogue for 1840, contained in the NAUTICAL ALMANAC for 1848, pages 436 to 441, by means of the formulæ at page xiv of the PREFACE to the *Second Edition* of the NAUTICAL ALMANAC for 1834. Of the 47 stars inserted for the first time in the NAUTICAL ALMANAC for 185"

the mean places of 43 have been derived from the Greenwich Observations of 1850 as printed, and the Observations of 1851 and 1852 as supplied in manuscript by the ASTRONOMER ROYAL. The positions of ν Orionis, h Sagittarii, ρ Capricorni, and γ Virginis have been taken from the Greenwich Twelve-year Catalogue*—the place for 1840 alone having been adopted for the latter star. The proper motions as determined by the REV. R. MAIN, in his paper on the subject, (*Mem. Roy. Ast. Soc. Vol. xix.*) or computed by similar formulæ, have been included in the reductions of the mean places of the 47 additional stars to the year 1864.

The Logarithms of E, F, G, H, and the value of L, at page XIX, of each month, have been computed from the Logarithms of A, B, C, D, in page XX, by the formulæ in the introduction to the Greenwich Twelve-year Catalogue.*

The Logarithms of A, B, C, D, at page XX, of each Month, have been computed agreeably to the formulæ at page 329, omitting only in the values of C and D the terms $-0.00405 \sin 2 \zeta$ and $-0.0885 \cos 2 \zeta$; and for the only Stars that can be sensibly affected by the omission, viz., the five Polar Stars, a Table of Corrections is given at pages 388 and 389.

The Table of Constants at pages 330 and 331 for facilitating the Reduction of Stars *generally*, has been computed from BESSEL's formulæ, given at page 329, using the A, B, C, D, contained in this volume.

The apparent places of 142 of the Fixed Stars have been deduced from the mean places for January 0^d 597, 1864, using the Variables A, B, C, D, in the present Volume with Constants computed for the year 1860, similar to those for 1850 in the Catalogue of the British Association.† For the five Polar Stars the constants have been computed for 1864 and 1865, and interpolated. The corrections were computed independently for every tenth day, with the exception of those for α and δ URSE MINORIS, which were interpolated, with second differences, from computations made for every third day of the year.

A further correction of the right ascension for *daily* aberration is necessary, where extreme accuracy is required, and may be computed as follows: Let ϕ

* Catalogue of 2156 Stars, formed from the Observations made during twelve years, from 1836 to 1847, at the Royal Observatory, Greenwich. London. 1849. 4to.

† The Catalogue of Stars of the British Association for the Advancement of Science; containing the Mean Right Ascensions and North Polar Distances of eight thousand three hundred and seventy-seven Fixed Stars, reduced to January 1, 1850: together with their annual precessions, secular variations, and proper motions, as well as the logarithmic constants for computing precession, aberration, and nutation. With a Preface explanatory of their Construction and Application. By the late Francis Baily, Esq. London, 1845. 4to.

denote the latitude of the place, and δ the declination of the Star, then the correction (*in time*) for the *upper* transit is,

$$+ 0^{\circ} 0206 \cos \phi \sec \delta$$

and for the *lower* transit,

$$- 0^{\circ} 0206 \cos \phi \sec \delta$$

The Lists of Moon-Culminating Stars, Stars liable to Occultation by the Moon, and those to be observed near the Opposition of Mars, have been selected from the Catalogue of the British Association.

The mean places of the Stars for each List were taken in order of preference,
1. From the Catalogue of the 147 Stars in this Work. 2. From AIRY'S Greenwich Twelve-Year Catalogue of 2156 Stars. 3. From the Catalogue of the British Association. The reduction of the mean to the apparent places has been performed by means of the Constants in the Catalogue of the British Association; the corrections for each star on the contiguous days being obtained by different computers for the Moon-Culminating List, and those for the Occultations by duplicate computations.

The calculations of the Solar Eclipses, the Elements of Occultations, and the Occultations visible at Greenwich, have been made according to the methods and formulæ given by Mr. WOOLHOUSE in the APPENDIX to the NAUTICAL ALMANAC for 1836: those relating to the Occultations wholly, and to the Eclipses partly, in duplicate.

The Tides at London Bridge for the year 1864 have been computed from tables in "An Elementary Treatise on the Tides. By J. W. LUBBOCK, Esq." (London, 1839.)

The Tables for finding the Latitude of a place by Observations of the Pole Star (α URSE MINORIS), at any hour of the day, are founded on the following formula:

$$l = a - p \cos h + \frac{1}{2} \sin 1'' (p \sin h)^2 \tan a$$

where l denotes the latitude

a — the true altitude of the Star

p — the apparent polar distance, expressed in seconds of arc

h — the hour angle of the Star = $S - \alpha$; S being the sidereal time of observation, and α the right ascension of the Star.

Table I. contains the value of the *second* term ($p \cos h$) or the *first correction*; assuming, as *mean* values, $p = 85' 0''$, and $\alpha = 17^{\circ} 15'$.

Table II. contains the value of the *third* term ($\frac{1}{2} \sin 1'' (p \sin h)^2 \tan a$) or the *second correction*, using the same *mean* quantities as in Table I.

Table III., which is *special* for the year 1864, and depends upon the difference between the true and assumed values of p and α , contains the *third* correction increased by $1'$ for the purpose of rendering the quantities additive.

A fourth term ($-\frac{1}{2} \sin^2 1'' (p \cos h) (p \sin h)^2$) is omitted, its greatest value being less than half a second.

In the construction of this Ephemeris generally, duplicate computations have been made where necessary, and isolated calculations performed to guard against systematic error; all results admitting of such test have been finally examined by means of differences, and every precaution taken to secure accuracy in the printing.

J. R. HIND,
Superintendent.

*Nautical Almanac Office,
3, Verulam Buildings, Gray's Inn, London.
August 20, 1860.*

PRINCIPAL ARTICLES OF THE CALENDAR, For the Year 1864.

Golden Number - - - -	3	Dominical Letters - - -	CB
Epact - - - - -	22	Roman Indiction - - -	7
Solar Cycle - - - - -	25	Julian Period - - - - -	6577

FIXED AND MOVEABLE FESTIVALS, ANNIVERSARIES, &c. &c.

Epiphany - - - - -	Jan. 6	<i>Pentecost—Whit Sunday</i> -	May 15
<i>Septuagesima Sunday</i> - - - -	24	<i>Trinity Sunday</i> - - - - -	22
<i>Quinquagesima—Shrove Sunday</i>	Feb. 7	Birth of Q. Victoria - - - -	24
<i>Ash Wednesday</i> - - - - -	10	<i>Corpus Christi</i> - - - - -	26
<i>Quadragesima—1st Sun. in Lent</i>	14	Accession of Q. Victoria - -	June 20
St. David - - - - -	Mar. 1	Proclamation - - - - -	21
St. Patrick - - - - -	17	St. John Bapt.—Midsum. Day -	24
<i>Palm Sunday</i> - - - - -	20	Birth of Prince Consort - -	Aug. 26
Annunciation—Lady Day - - -	25	St. Michael—Michaelmas Day	Sept. 29
<i>Good Friday</i> - - - - -	25	Birth of Prince of Wales - -	Nov. 9
EASTER SUNDAY - - - - -	27	<i>1st Sunday in Advent</i> - - -	27
<i>Low Sunday</i> - - - - -	April 3	St. Andrew - - - - -	30
St. George - - - - -	23	St. Thomas - - - - -	Dec. 21
<i>Rogation Sunday</i> - - - -	May 1	Christmas Day - - - - -	25
<i>Ascension Day—Holy Thursday</i>	5		

The Year 5625 of the Jewish Era commences on October 1, 1864.

Ramadan (Month of Abstinence observed by the Turks) commences on
February 9, 1864.

The Year 1281 of the Mohammedan Era commences on June 6, 1864.

EXPLANATION OF ASTRONOMICAL SYMBOLS AND ABBREVIATIONS.

☉ The Sun.	♄ Euterpe.	♃ Jupiter.
☾ The Moon.	♂ Bellona.	♄ Saturn.
☿ Mercury.	♂ Amphitrito.	♅ Uranus.
♀ Venus.	♄ Urania.	♆ Neptune.
☾ or ♂ The Earth.	♄ Euphrosyne.	♄ Conjunction.
♂ Mars.	♄ Pomona.	☐ Quadrature.
① Ceres.	♄ Polyhymnia.	♄ Opposition.
② Pallas.	♄ Circe.	♄ Ascending Node.
③ Juno.	♄ Leucothea.	♄ Descending Node.
④ Vesta.	♄ Atalanta.	
⑤ Astræa.	♄ Fides.	N. North. S. South.
⑥ Hebe.	♄ Leda.	E. East. W. West.
⑦ Iris.	♄ Lætitia.	° Degrees.
⑧ Flora.	♄ Harmonia.	' Minutes of Arc.
⑨ Metis.	♄ Daphne.	" Seconds of Arc.
⑩ Hygeia.	♄ Isis.	h Hours.
⑪ Parthenope.	♄ Ariadne.	m Minutes of Time.
⑫ Victoria.	♄ Nysa.	s Seconds of Time.
⑬ Egeria.	♄ Eugenia.	
⑭ Irene.	♄ Hestia.	♈ Aries - - 0
⑮ Eunomia.	♄ Aglaia.	♉ Taurus - - 30
⑯ Psyche.	♄ Doris.	♊ Gemini - - 60
⑰ Thetis.	♄ Pales.	♋ Cancer - - 90
⑱ Melpomene.	♄ Virginia.	♌ Leo - - - 120
⑲ Fortuna.	♄ Nemausa.	♍ Virgo - - 150
⑳ Massilia.	♄ Europa.	♎ Libra - - 180
㉑ Lutetia.	♄ Calypso.	♏ Scorpio - 210
㉒ Calliope.	♄ Alexandra.	♐ Sagittarius 240
㉓ Thalia.	♄ Pandora.	♑ Capricornus 270
㉔ Themis.		♒ Aquarius - 300
㉕ Phoece.	♄ Mnemosyne.	♓ Pisces - - 330
㉖ Proserpine.	♄ Concordia.	

LAW TERMS, 1864.

As settled by Statutes

11 GEO. IV. and 1 WILL. IV. cap. 70, s. 6. (Passed July 23, 1830.)

1 WILL. IV. - - - - - cap. 3, s. 2. (Passed Dec. 23, 1830.)

HILARY TERM - - - - *Begins* Jan. 11 - - *Ends* Feb. 1

EASTER - - - - - Apr. 15 - - - - May 9 .

TRINITY - - - - - May 22 - - - - June 13

MICHAELMAS - - - - - Nov. 2 - - - - Nov. 25

For Returns see Statute 1 WILL. IV. cap. 3, s. 2. (Passed Dec. 23, 1830.)

UNIVERSITY TERMS, 1864.

Terms.	OXFORD.		CAMBRIDGE.		
	<i>Begins.</i>	<i>Ends.</i>	<i>Begins.</i>	<i>Divides.</i>	<i>Ends.</i>
Lent - - - -	Jan. 14	Mar. 19	Jan. 13	Feb. 14, Midnight.	Mar. 18
Easter - - -	Apr. 6	May 14	Apr. 1	May 13, Noon.	June 24
Trinity - - -	May 18	July 9	- - -	- - - - -	- - -
Michaelmas -	Oct. 10	Dec. 17	Oct. 1	Nov. 8, Noon.	Dec. 16
	<i>The Act, July 5.</i>		<i>The Commencement, June 21.</i>		

ERRATA.

(Continued from page xvi of the *Nautical Almanac for 1863*.)

NAUTICAL ALMANAC FOR THE YEAR 1860.

Page 509, February 6, *for* (eclipsed invis.
 read " vis.

NAUTICAL ALMANAC FOR THE YEAR 1861.

(*in some copies*)

Page 439. 13th line from the top, *for* — 119 41·6 *read* — 117 9·4
 14th " " " + 119 56·4 " + 122 28·6
 17th " " " — 88 29·9 " — 85 57·7
 18th " " " + 148 4·4 " + 150 36·6

NAUTICAL ALMANAC FOR THE YEAR 1863.

(*in some copies*)

Page 486. Col. *f* last line, — *for* +9 16 0 *read* +9 6·0

NAUTICAL ALMANAC FOR THE YEAR 1864.

Page 256, Meridian Passage, June 10 — — *for* 22 32·2 *read* 22 33·2
 352, At top — — — — " *α Geminorum read*
 α' Geminorum.

E P H E M E R I S
FOR THE YEAR
1864,
FOR THE MERIDIAN
OF THE
ROYAL OBSERVATORY AT GREENWICH.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiameter passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Frid.	1	18 45 15.37	11.047	S. 23 2 51.5	11.95	1 11.09	3 37.87	1.188
Sat.	2	18 49 40.36	11.034	22 57 50.9	13.10	1 11.05	4 6.23	1.175
Sun.	3	18 54 5.03	11.020	22 52 22.8	14.24	1 11.00	4 34.26	1.161
Mon.	4	18 58 29.34	11.005	22 46 27.4	15.38	1 10.94	5 1.94	1.146
Tues.	5	19 2 53.28	10.989	22 40 4.7	16.51	1 10.89	5 29.25	1.129
Wed.	6	19 7 16.80	10.971	22 33 15.1	17.63	1 10.83	5 56.14	1.111
Thur.	7	19 11 39.87	10.952	22 25 58.6	18.74	1 10.76	6 22.58	1.092
Frid.	8	19 16 2.47	10.931	22 18 15.7	19.84	1 10.69	6 48.55	1.071
Sat.	9	19 20 24.55	10.909	22 10 6.4	20.93	1 10.62	7 14.01	1.049
Sun.	10	19 24 46.09	10.886	22 1 31.1	22.01	1 10.55	7 38.91	1.026
Mon.	11	19 29 7.05	10.861	21 52 30.1	23.08	1 10.47	8 3.24	1.002
Tues.	12	19 33 27.40	10.835	21 43 3.5	24.14	1 10.39	8 26.98	0.976
Wed.	13	19 37 47.12	10.808	21 33 11.8	25.18	1 10.30	8 50.08	0.949
Thur.	14	19 42 6.18	10.780	21 22 55.1	26.21	1 10.22	9 12.52	0.921
Frid.	15	19 46 24.57	10.752	21 12 13.7	27.23	1 10.13	9 34.30	0.893
Sat.	16	19 50 42.27	10.723	21 1 8.0	28.24	1 10.03	9 55.38	0.864
Sun.	17	19 54 59.26	10.693	20 49 38.3	29.23	1 9.94	10 15.75	0.834
Mon.	18	19 59 15.52	10.662	20 37 44.9	30.21	1 9.84	10 35.41	0.804
Tues.	19	20 3 31.05	10.631	20 25 28.1	31.18	1 9.74	10 54.33	0.773
Wed.	20	20 7 45.83	10.600	20 12 48.2	32.13	1 9.64	11 12.50	0.741
Thur.	21	20 11 59.83	10.568	19 59 45.7	33.07	1 9.54	11 29.91	0.709
Frid.	22	20 16 13.08	10.535	19 46 20.8	33.99	1 9.43	11 46.54	0.677
Sat.	23	20 20 25.53	10.502	19 32 33.9	34.90	1 9.32	12 2.40	0.645
Sun.	24	20 24 37.19	10.470	19 18 25.4	35.80	1 9.21	12 17.47	0.612
Mon.	25	20 28 48.07	10.437	19 3 55.5	36.68	1 9.10	12 31.75	0.578
Tues.	26	20 32 58.15	10.403	18 49 4.7	37.55	1 8.99	12 45.24	0.545
Wed.	27	20 37 7.42	10.370	18 33 53.3	38.40	1 8.88	12 57.92	0.512
Thur.	28	20 41 15.89	10.336	18 18 21.7	39.23	1 8.77	13 9.79	0.478
Frid.	29	20 45 23.55	10.302	18 2 30.3	40.05	1 8.65	13 20.87	0.445
Sat.	30	20 49 30.40	10.269	17 46 19.4	40.85	1 8.54	13 31.14	0.412
Sun.	31	20 53 36.46	10.236	17 29 49.4	41.64	1 8.42	13 40.62	0.378
Mon.	32	20 57 41.71		S. 17 13 0.8		1 8.31	13 49.29	

* Time of the Semidiameter passing may be found by subtracting 0.19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subtracted from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
Frid.	1	^h 18 ^m 45 ^s 14.70	[°] S. 23 ['] 2 ["] 52.2	['] 16 ["] 18.2	^m 3 ^s 37.80	^h 18 ^m 41 ^s 36.90
Sat.	2	18 49 39.61	22 57 51.8	16 18.2	4 6.15	18 45 33.46
Sun.	3	18 54 4.19	22 52 23.9	16 18.2	4 34.17	18 49 30.02
Mon.	4	18 58 28.42	22 46 28.7	16 18.2	5 1.84	18 53 26.58
Tues.	5	19 2 52.28	22 40 6.3	16 18.2	5 29.15	18 57 23.13
Wed.	6	19 7 15.72	22 33 16.8	16 18.1	5 56.03	19 1 19.69
Thur.	7	19 11 38.71	22 26 0.6	16 18.1	6 22.46	19 5 16.25
Frid.	8	19 16 1.23	22 18 17.9	16 18.1	6 48.43	19 9 12.80
Sat.	9	19 20 23.24	22 10 9.0	16 18.1	7 13.88	19 13 9.36
Sun.	10	19 24 44.70	22 1 34.0	16 18.0	7 38.78	19 17 5.92
Mon.	11	19 29 5.59	21 52 33.2	16 18.0	8 3.11	19 21 2.48
Tues.	12	19 33 25.87	21 43 6.9	16 17.9	8 26.84	19 24 59.03
Wed.	13	19 37 45.53	21 33 15.5	16 17.9	8 49.94	19 28 55.59
Thur.	14	19 42 4.53	21 22 59.1	16 17.8	9 12.38	19 32 52.15
Frid.	15	19 46 22.86	21 12 18.1	16 17.7	9 34.16	19 36 48.70
Sat.	16	19 50 40.50	21 1 12.7	16 17.7	9 55.24	19 40 45.26
Sun.	17	19 54 57.43	20 49 43.3	16 17.6	10 15.61	19 44 41.82
Mon.	18	19 59 13.64	20 37 50.2	16 17.5	10 35.27	19 48 38.37
Tues.	19	20 3 29.12	20 25 33.7	16 17.4	10 54.19	19 52 34.93
Wed.	20	20 7 43.85	20 12 54.2	16 17.4	11 12.36	19 56 31.49
Thur.	21	20 11 57.81	19 59 52.0	16 17.3	11 29.77	20 0 28.04
Frid.	22	20 16 11.01	19 46 27.5	16 17.2	11 46.41	20 4 24.60
Sat.	23	20 20 23.42	19 32 40.9	16 17.1	12 2.27	20 8 21.15
Sun.	24	20 24 35.05	19 18 32.7	16 16.9	12 17.34	20 12 17.71
Mon.	25	20 28 45.89	19 4 3.2	16 16.8	12 31.63	20 16 14.26
Tues.	26	20 32 55.94	18 49 12.7	16 16.7	12 45.12	20 20 10.82
Wed.	27	20 37 5.18	18 34 1.6	16 16.6	12 57.81	20 24 7.37
Thur.	28	20 41 13.62	18 18 30.3	16 16.5	13 9.69	20 28 3.93
Frid.	29	20 45 21.26	18 2 39.2	16 16.3	13 20.77	20 32 0.49
Sat.	30	20 49 28.09	17 46 28.6	16 16.2	13 31.05	20 35 57.04
Sun.	31	20 53 34.13	17 29 58.9	16 16.0	13 40.53	20 39 53.60
Mon.	32	20 57 39.36	S. 17 13 10.5	16 15.9	13 49.21	20 43 50.15

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	280° 23' 52".3	S. 0° 05'	9.9926507	15° 2' 1"	15° 7' 2"	55° 5' 1"	55° 23' 8"
2	281 25 2.2	N. 0° 01'	9.9926542	15 13.0	15 19.3	55 44.8	56 8.0
3	282 26 12.3	0° 11'	9.9926600	15 26.1	15 33.4	56 33.1	56 59.9
4	283 27 22.7	0° 22'	9.9926681	15 41.1	15 49.0	57 28.0	57 57.0
5	284 28 33.3	0° 34'	9.9926782	15 57.0	16 5.0	58 26.4	58 55.5
6	285 29 44.0	0° 47'	9.9926901	16 12.7	16 19.9	59 23.6	59 50.1
7	286 30 54.8	0° 60'	9.9927037	16 26.5	16 32.2	60 14.2	60 35.2
8	287 32 5.6	0° 72'	9.9927189	16 36.9	16 40.5	60 52.5	61 5.4
9	288 33 16.1	0° 80'	9.9927356	16 42.7	16 43.6	61 13.6	61 16.9
10	289 34 26.2	0° 86'	9.9927539	16 43.1	16 41.4	61 15.3	61 8.9
11	290 35 35.9	0° 89'	9.9927738	16 38.4	16 34.3	60 57.8	60 42.7
12	291 36 45.0	0° 87'	9.9927952	16 29.2	16 23.4	60 24.2	60 2.8
13	292 37 53.4	0° 82'	9.9928184	16 17.0	16 10.2	59 39.3	59 14.3
14	293 39 1.0	0° 73'	9.9928435	16 3.1	15 56.0	58 48.5	58 22.4
15	294 40 7.9	0° 63'	9.9928705	15 48.9	15 42.0	57 56.5	57 31.2
16	295 41 14.0	0° 51'	9.9928997	15 35.3	15 29.0	57 6.8	56 43.7
17	296 42 19.2	0° 38'	9.9929312	15 23.1	15 17.6	56 22.0	56 1.9
18	297 43 23.5	0° 26'	9.9929650	15 12.5	15 7.9	55 43.3	55 26.4
19	298 44 27.1	0° 13'	9.9930013	15 3.7	15 0.0	55 11.0	54 57.3
20	299 45 29.8	N. 0° 01'	9.9930401	14 56.6	14 53.7	54 45.1	54 34.4
21	300 46 31.7	S. 0° 09'	9.9930815	14 51.2	14 49.0	54 25.1	54 17.2
22	301 47 32.6	0° 18'	9.9931255	14 47.2	14 45.8	54 10.5	54 5.2
23	302 48 32.7	0° 26'	9.9931722	14 44.7	14 43.9	54 1.1	53 58.2
24	303 49 31.9	0° 30'	9.9932214	14 43.4	14 43.3	53 56.6	53 56.3
25	304 50 30.3	0° 33'	9.9932733	14 43.6	14 44.3	53 57.3	53 59.7
26	305 51 27.9	0° 32'	9.9933277	14 45.3	14 46.8	54 3.6	54 9.1
27	306 52 24.6	0° 30'	9.9933846	14 48.8	14 51.2	54 16.2	54 25.1
28	307 53 20.5	0° 26'	9.9934441	14 54.1	14 57.6	54 35.8	54 48.4
29	308 54 15.7	0° 19'	9.9935059	15 1.5	15 6.1	55 3.0	55 19.7
30	309 55 10.0	S. 0° 10'	9.9935699	15 11.2	15 16.8	55 38.4	55 59.0
31	310 56 3.6	N. 0° 01'	9.9936361	15 23.0	15 29.6	56 21.6	56 46.0
32	311 56 56.5	N. 0° 12'	9.9937043	15 36.7	15 44.2	57 12.0	57 39.2

MEAN TIME.

		THE MOON'S							
Day of the Week.	Day of the Month.	Longitude.				Latitude.			
		Age.		Meridian		Noon.		Passage.	
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.	Noon.	Passage.
		^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^d	^h ^m
Frid.	1	181 8 23.7	187 16 53.2	S. 4 15 43.4	S. 3 55 35.9	21.7	17 47.3		
Sat.	2	193 29 26.0	199 46 37.6	3 32 29.5	3 6 32.7	22.7	18 33.1		
Sun.	3	206 9 2.9	212 37 15.0	2 37 56.2	2 6 53.6	23.7	19 22.1		
Mon.	4	219 11 43.8	225 52 54.9	1 33 41.6	S. 0 58 40.4	24.7	20 15.0		
Tues.	5	232 41 7.0	239 36 31.6	S. 0 22 14.4	N. 0 15 7.7	25.7	21 11.9		
Wed.	6	246 39 10.7	253 48 54.7	N. 0 52 52.4	1 30 22.6	26.7	22 12.1		
Thur.	7	261 5 21.9	268 27 57.7	2 6 57.1	2 41 52.6	27.7	23 14.1		
Frid.	8	275 55 54.8	283 28 12.3	3 14 24.8	3 43 50.4	28.7	0		
Sat.	9	291 3 39.8	298 40 58.8	4 9 29.2	4 30 46.5	0.2	0 15.9		
Sun.	10	306 18 45.7	313 55 36.9	4 47 14.3	4 58 33.5	1.2	1 15.8		
Mon.	11	321 30 11.4	329 1 15.0	5 4 33.9	5 5 14.9	2.2	2 12.8		
Tues.	12	336 27 43.7	343 48 45.1	5 0 44.3	4 51 17.4	3.2	3 7.1		
Wed.	13	351 3 39.9	358 12 2.1	4 37 15.7	4 19 5.3	4.2	3 59.2		
Thur.	14	5 13 38.2	12 8 26.3	3 57 15.0	3 32 15.2	5.2	4 49.8		
Frid.	15	18 56 34.1	25 38 17.2	3 4 36.9	2 34 50.6	6.2	5 39.7		
Sat.	16	32 13 57.3	38 44 0.7	2 3 26.0	1 30 51.1	7.2	6 29.6		
Sun.	17	45 8 56.1	51 29 14.3	N. 0 57 33.3	N. 0 23 57.1	8.2	7 19.7		
Mon.	18	57 45 25.4	63 57 59.9	S. 0 9 33.3	S. 0 42 35.7	9.2	8 10.0		
Tues.	19	70 7 26.4	76 14 11.7	1 14 49.4	1 45 54.5	10.2	9 0.4		
Wed.	20	82 18 40.4	88 21 14.5	2 15 32.9	2 43 27.3	11.2	9 50.2		
Thur.	21	94 22 13.7	100 21 54.9	3 9 21.9	3 33 2.1	12.2	10 38.9		
Frid.	22	106 20 33.3	112 18 21.9	3 54 14.7	4 12 47.9	13.2	11 26.1		
Sat.	23	118 15 31.8	124 12 13.4	4 28 31.6	4 41 16.8	14.2	12 11.6		
Sun.	24	130 8 36.2	136 4 49.6	4 50 56.7	4 57 25.8	15.2	12 55.5		
Mon.	25	142 1 3.5	147 57 28.5	5 0 40.7	5 0 39.2	16.2	13 38.2		
Tues.	26	153 54 16.2	159 51 40.4	4 57 21.0	4 50 47.3	17.2	14 20.1		
Wed.	27	165 49 57.1	171 49 24.4	4 41 1.0	4 28 6.3	18.2	15 2.0		
Thur.	28	177 50 23.0	183 53 16.6	4 12 8.8	3 53 15.5	19.2	15 44.6		
Frid.	29	189 58 31.2	196 6 35.9	3 31 34.8	3 7 16.4	20.2	16 28.6		
Sat.	30	202 18 1.4	208 33 20.7	2 40 31.8	2 11.34.1	21.2	17 15.1		
Sun.	31	214 53 7.4	221 17 55.7	1 40 38.1	S. 1 8 1.2	22.2	18 4.5		
Mon.	32	227 48 19.0	234 24 48.6	S. 0 34 3.1	N. 0 0 53.6	23.2	18 57.6		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 1.				SUNDAY 3.			
0	h m s	S. o' ' "	"	0	h m s	S. o' ' "	"
1	11 57 23.03	4 21 46.6	107.37	1	13 33 4.69	12 33 17.3	93.97
2	11 59 17.67	4 32 30.8	107.25	2	13 35 10.88	12 42 41.1	93.48
3	12 1 12.46	4 43 14.3	107.15	3	13 37 17.39	12 52 2.0	92.97
4	12 3 7.42	4 53 57.3	107.05	4	13 39 24.22	13 1 19.8	92.45
5	12 5 2.53	5 4 39.6	106.93	5	13 41 31.39	13 10 34.5	91.92
6	12 6 57.82	5 15 21.2	106.81	6	13 43 38.89	13 19 46.0	91.38
7	12 8 53.27	5 26 2.1	106.67	7	13 45 46.72	13 28 54.3	90.83
8	12 10 48.90	5 36 42.1	106.53	8	13 47 54.88	13 37 59.3	90.27
9	12 12 44.71	5 47 21.3	106.39	9	13 50 3.39	13 47 0.9	89.70
10	12 14 40.70	5 57 59.7	106.24	10	13 52 12.24	13 55 59.1	89.12
11	12 16 36.87	6 8 37.1	106.08	11	13 54 21.43	14 4 53.8	88.52
12	12 18 33.24	6 19 13.6	105.91	12	13 56 30.97	14 13 44.9	87.92
13	12 20 29.79	6 29 49.1	105.74	13	13 58 40.85	14 22 32.4	87.30
14	12 22 26.55	6 40 23.5	105.56	14	14 0 51.09	14 31 16.2	86.68
15	12 24 23.50	6 50 56.9	105.37	15	14 3 1.68	14 39 56.3	86.04
16	12 26 20.66	7 1 29.1	105.18	16	14 5 12.63	14 48 32.5	85.38
17	12 28 18.03	7 12 0.2	104.97	17	14 7 23.94	14 57 4.8	84.72
18	12 30 15.61	7 22 30.0	104.75	18	14 9 35.60	15 5 33.1	84.05
19	12 32 13.40	7 32 58.5	104.53	19	14 11 47.63	15 13 57.4	83.37
20	12 34 11.41	7 43 25.8	104.31	20	14 14 0.02	15 22 17.6	82.67
21	12 36 9.65	7 53 51.6	104.08	21	14 16 12.78	15 30 33.7	81.96
22	12 38 8.10	8 4 16.1	103.83	22	14 18 25.90	15 38 45.4	81.24
23	12 40 6.79	8 14 39.1	103.58	23	14 20 39.39	15 46 52.9	80.51
24	12 42 5.71	S. 8 25 0.6	103.32	24	14 22 53.25	S. 15 54 55.9	79.77
SATURDAY 2.				MONDAY 4.			
0	12 44 4.87	S. 8 35 20.5	103.05	0	14 25 7.49	S. 16 2 54.5	79.01
1	12 46 4.27	8 45 38.8	102.78	1	14 27 22.10	16 10 48.6	78.24
2	12 48 3.91	8 55 55.5	102.50	2	14 29 37.08	16 18 38.0	77.46
3	12 50 3.80	9 6 10.5	102.20	3	14 31 52.44	16 26 22.8	76.67
4	12 52 3.94	9 16 23.7	101.90	4	14 34 8.18	16 34 2.8	75.87
5	12 54 4.33	9 26 35.1	101.58	5	14 36 24.30	16 41 38.0	75.05
6	12 56 4.99	9 36 44.6	101.27	6	14 38 40.79	16 49 8.3	74.22
7	12 58 5.90	9 46 52.2	100.95	7	14 40 57.66	16 56 33.6	73.37
8	13 0 7.08	9 56 57.9	100.62	8	14 43 14.92	17 3 53.8	72.52
9	13 2 8.52	10 7 1.6	100.27	9	14 45 32.55	17 11 8.9	71.65
10	13 4 10.24	10 17 3.2	99.92	10	14 47 50.57	17 18 18.9	70.77
11	13 6 12.23	10 27 2.7	99.55	11	14 50 8.97	17 25 23.5	69.88
12	13 8 14.51	10 36 59.9	99.18	12	14 52 27.75	17 32 22.8	68.98
13	13 10 17.07	10 46 55.0	98.79	13	14 54 46.92	17 39 16.7	68.06
14	13 12 19.90	10 56 47.7	98.40	14	14 57 6.46	17 46 5.0	67.13
15	13 14 23.03	11 6 38.2	98.00	15	14 59 26.39	17 52 47.8	66.18
16	13 16 26.45	11 16 26.2	97.60	16	15 1 46.70	17 59 24.9	65.22
17	13 18 30.17	11 26 11.8	97.18	17	15 4 7.40	18 5 56.3	64.26
18	13 20 34.18	11 35 54.8	96.75	18	15 6 28.47	18 12 21.8	63.28
19	13 22 38.49	11 45 35.3	96.32	19	15 8 49.93	18 18 41.5	62.28
20	13 24 43.11	11 55 13.2	95.87	20	15 11 11.77	18 24 55.3	61.25
21	13 26 48.04	12 4 48.4	95.41	21	15 13 33.98	18 31 3.0	60.21
22	13 28 53.27	12 14 20.8	94.94	22	15 15 56.58	18 37 4.6	59.14
23	13 30 58.82	12 23 50.5	94.46	23	15 18 19.55	18 43 0.0	58.00
24	13 33 4.69	S. 12 33 17.3		24	15 20 42.90	S. 18 48 49.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 5.				THURSDAY 7.			
0	15 20 42 ^s 90	S. 18 48 49 ^s 2	57 ^s 14	0	17 21 48 ^s 83	S. 21 2 40 ^s 1	6 ^s 40
1	15 23 6 ^s 63	18 54 32 ^s 0	56 ^s 07	1	17 24 26 ^s 32	21 2 1 ^s 7	7 ^s 92
2	15 25 30 ^s 73	19 0 8 ^s 4	54 ^s 99	2	17 27 3 ^s 96	21 1 14 ^s 2	9 ^s 44
3	15 27 55 ^s 20	19 5 38 ^s 3	53 ^s 90	3	17 29 41 ^s 73	21 0 17 ^s 6	10 ^s 96
4	15 30 20 ^s 04	19 11 1 ^s 7	52 ^s 79	4	17 32 19 ^s 64	20 59 11 ^s 8	12 ^s 49
5	15 32 45 ^s 25	19 16 18 ^s 4	51 ^s 67	5	17 34 57 ^s 68	20 57 56 ^s 9	14 ^s 02
6	15 35 10 ^s 82	19 21 28 ^s 3	50 ^s 53	6	17 37 35 ^s 82	20 56 32 ^s 8	15 ^s 55
7	15 37 36 ^s 76	19 26 31 ^s 5	49 ^s 39	7	17 40 14 ^s 08	20 54 59 ^s 5	17 ^s 08
8	15 40 3 ^s 07	19 31 27 ^s 9	48 ^s 24	8	17 42 52 ^s 44	20 53 17 ^s 1	18 ^s 61
9	15 42 29 ^s 73	19 36 17 ^s 3	47 ^s 07	9	17 45 30 ^s 89	20 51 25 ^s 4	20 ^s 15
10	15 44 56 ^s 75	19 40 59 ^s 7	45 ^s 89	10	17 48 9 ^s 43	20 49 24 ^s 5	21 ^s 68
11	15 47 24 ^s 12	19 45 35 ^s 1	44 ^s 70	11	17 50 48 ^s 05	20 47 14 ^s 4	23 ^s 22
12	15 49 51 ^s 84	19 50 3 ^s 3	43 ^s 50	12	17 53 26 ^s 74	20 44 55 ^s 1	24 ^s 75
13	15 52 19 ^s 92	19 54 24 ^s 3	42 ^s 28	13	17 56 5 ^s 49	20 42 26 ^s 6	26 ^s 29
14	15 54 48 ^s 34	19 58 38 ^s 0	41 ^s 05	14	17 58 44 ^s 30	20 39 48 ^s 8	27 ^s 82
15	15 57 17 ^s 10	20 2 44 ^s 3	39 ^s 82	15	18 1 23 ^s 16	20 37 1 ^s 9	29 ^s 35
16	15 59 46 ^s 21	20 6 43 ^s 2	38 ^s 57	16	18 4 2 ^s 06	20 34 5 ^s 8	30 ^s 90
17	16 2 15 ^s 64	20 10 34 ^s 6	37 ^s 30	17	18 6 40 ^s 99	20 31 0 ^s 4	32 ^s 42
18	16 4 45 ^s 41	20 14 18 ^s 4	36 ^s 03	18	18 9 19 ^s 94	20 27 45 ^s 9	33 ^s 95
19	16 7 15 ^s 51	20 17 54 ^s 6	34 ^s 75	19	18 11 58 ^s 91	20 24 22 ^s 2	35 ^s 47
20	16 9 45 ^s 93	20 21 23 ^s 1	33 ^s 45	20	18 14 37 ^s 90	20 20 49 ^s 4	37 ^s 00
21	16 12 16 ^s 67	20 24 43 ^s 8	32 ^s 15	21	18 17 16 ^s 88	20 17 7 ^s 4	38 ^s 52
22	16 14 47 ^s 73	20 27 56 ^s 7	30 ^s 83	22	18 19 55 ^s 86	20 13 16 ^s 3	40 ^s 03
23	16 17 19 ^s 10	S. 20 31 1 ^s 7	29 ^s 50	23	18 22 34 ^s 82	S. 20 9 16 ^s 1	41 ^s 55
WEDNESDAY 6.				FRIDAY 8.			
0	16 19 50 ^s 77	S. 20 33 58 ^s 7	28 ^s 17	0	18 25 13 ^s 77	S. 20 5 6 ^s 8	43 ^s 06
1	16 22 22 ^s 75	20 36 47 ^s 7	26 ^s 83	1	18 27 52 ^s 69	20 0 48 ^s 5	44 ^s 56
2	16 24 55 ^s 02	20 39 28 ^s 7	25 ^s 47	2	18 30 31 ^s 56	19 56 21 ^s 1	46 ^s 06
3	16 27 27 ^s 59	20 42 1 ^s 5	24 ^s 10	3	18 33 10 ^s 40	19 51 44 ^s 8	47 ^s 55
4	16 30 0 ^s 44	20 44 26 ^s 1	22 ^s 73	4	18 35 49 ^s 18	19 46 59 ^s 5	49 ^s 03
5	16 32 33 ^s 58	20 46 42 ^s 4	21 ^s 35	5	18 38 27 ^s 91	19 42 5 ^s 3	50 ^s 52
6	16 35 6 ^s 99	20 48 50 ^s 5	19 ^s 95	6	18 41 6 ^s 57	19 37 2 ^s 2	52 ^s 00
7	16 37 40 ^s 67	20 50 50 ^s 1	18 ^s 55	7	18 43 45 ^s 16	19 31 50 ^s 2	53 ^s 46
8	16 40 14 ^s 62	20 52 41 ^s 4	17 ^s 14	8	18 46 23 ^s 67	19 26 29 ^s 5	54 ^s 92
9	16 42 48 ^s 82	20 54 24 ^s 2	15 ^s 72	9	18 49 2 ^s 10	19 21 0 ^s 0	56 ^s 37
10	16 45 23 ^s 28	20 55 58 ^s 6	14 ^s 29	10	18 51 40 ^s 43	19 15 21 ^s 8	57 ^s 81
11	16 47 57 ^s 99	20 57 24 ^s 3	12 ^s 85	11	18 54 18 ^s 67	19 9 34 ^s 9	59 ^s 23
12	16 50 32 ^s 94	20 58 41 ^s 4	11 ^s 41	12	18 56 56 ^s 80	19 3 39 ^s 5	60 ^s 66
13	16 53 8 ^s 13	20 59 49 ^s 9	9 ^s 96	13	18 59 34 ^s 82	18 57 35 ^s 4	62 ^s 08
14	16 55 43 ^s 54	21 0 49 ^s 6	8 ^s 50	14	19 2 12 ^s 71	18 51 22 ^s 9	63 ^s 50
15	16 58 19 ^s 18	21 1 40 ^s 7	7 ^s 04	15	19 4 50 ^s 49	18 45 1 ^s 8	64 ^s 90
16	17 0 55 ^s 03	21 2 22 ^s 9	5 ^s 57	16	19 7 28 ^s 13	18 38 32 ^s 4	66 ^s 30
17	17 3 31 ^s 10	21 2 56 ^s 3	4 ^s 09	17	19 10 5 ^s 64	18 31 54 ^s 6	67 ^s 68
18	17 6 7 ^s 36	21 3 20 ^s 9	2 ^s 61	18	19 12 43 ^s 00	18 25 8 ^s 6	69 ^s 05
19	17 8 43 ^s 82	21 3 36 ^s 5	1 ^s 12	19	19 15 20 ^s 22	18 18 14 ^s 3	70 ^s 42
20	17 11 20 ^s 47	21 3 43 ^s 2	0 ^s 37	20	19 17 57 ^s 28	18 11 11 ^s 8	71 ^s 77
21	17 13 57 ^s 30	21 3 41 ^s 0	1 ^s 87	21	19 20 34 ^s 19	18 4 1 ^s 3	73 ^s 10
22	17 16 34 ^s 31	21 3 29 ^s 7	3 ^s 38	22	19 23 10 ^s 92	17 56 42 ^s 7	74 ^s 42
23	17 19 11 ^s 49	21 3 9 ^s 5	4 ^s 89	23	19 25 47 ^s 49	17 49 16 ^s 2	75 ^s 73
24	17 21 48 ^s 83	S. 21 2 40 ^s 1		24	19 28 23 ^s 88	S. 17 41 41 ^s 8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 9.				MONDAY 11.			
0	19 28 23.88	S. 17 41 41.8	77.04	0	21 28 55.54	S. 9 32 0.8	121.68
1	19 31 0.09	17 33 59.6	78.33	1	21 31 19.76	9 19 50.7	122.20
2	19 33 36.11	17 26 9.6	79.60	2	21 33 43.71	9 7 37.5	122.70
3	19 36 11.94	17 18 12.0	80.87	3	21 36 7.40	8 55 21.3	123.18
4	19 38 47.58	17 10 6.8	82.12	4	21 38 30.83	8 43 2.3	123.65
5	19 41 23.01	17 1 54.1	83.35	5	21 40 53.99	8 30 40.4	124.10
6	19 43 58.25	16 53 34.0	84.58	6	21 43 16.90	8 18 15.8	124.53
7	19 46 33.27	16 45 6.5	85.79	7	21 45 39.54	8 5 48.6	124.95
8	19 49 8.08	16 36 31.7	86.99	8	21 48 1.93	7 53 18.9	125.35
9	19 51 42.67	16 27 49.8	88.17	9	21 50 24.07	7 40 46.8	125.73
10	19 54 17.04	16 19 0.8	89.33	10	21 52 45.95	7 28 12.4	126.10
11	19 56 51.19	16 10 4.8	90.48	11	21 55 7.58	7 15 35.9	126.45
12	19 59 25.10	16 1 1.9	91.62	12	21 57 28.95	7 2 57.2	126.77
13	20 1 58.78	15 51 52.2	92.75	13	21 59 50.08	6 50 16.6	127.09
14	20 4 32.23	15 42 35.7	93.85	14	22 2 10.97	6 37 34.1	127.39
15	20 7 5.45	15 33 12.6	94.95	15	22 4 31.62	6 24 49.7	127.67
16	20 9 38.42	15 23 42.9	96.03	16	22 6 52.02	6 12 3.7	127.93
17	20 12 11.14	15 14 6.7	97.09	17	22 9 12.18	5 59 16.1	128.18
18	20 14 43.63	15 4 24.2	98.13	18	22 11 32.11	5 46 27.0	128.42
19	20 17 15.86	14 54 35.5	99.16	19	22 13 51.80	5 33 36.5	128.64
20	20 19 47.84	14 44 40.5	100.17	20	22 16 11.27	5 20 44.6	128.84
21	20 22 19.57	14 34 39.4	101.17	21	22 18 30.50	5 7 51.6	129.03
22	20 24 51.04	14 24 32.4	102.15	22	22 20 49.50	4 54 57.4	129.20
23	20 27 22.25	S. 14 14 19.5	103.12	23	22 23 8.28	S. 4 42 2.2	129.35
SUNDAY 10.				TUESDAY 12.			
0	20 29 53.20	S. 14 4 0.8	104.07	0	22 25 26.84	S. 4 29 6.1	129.49
1	20 32 23.89	13 53 36.4	104.99	1	22 27 45.18	4 16 9.1	129.62
2	20 34 54.32	13 43 6.5	105.90	2	22 30 3.30	4 3 11.4	129.73
3	20 37 24.48	13 32 31.0	106.80	3	22 32 21.20	3 50 13.1	129.82
4	20 39 54.38	13 21 50.2	107.69	4	22 34 38.90	3 37 14.1	129.90
5	20 42 24.01	13 11 4.0	108.55	5	22 36 56.39	3 24 14.7	129.96
6	20 44 53.38	13 0 12.7	109.40	6	22 39 13.67	3 11 15.0	130.01
7	20 47 22.47	12 49 16.3	110.23	7	22 41 30.74	2 58 14.9	130.05
8	20 49 51.30	12 38 15.0	111.04	8	22 43 47.62	2 45 14.6	130.07
9	20 52 19.85	12 27 8.7	111.84	9	22 46 4.30	2 32 14.2	130.08
10	20 54 48.13	12 15 57.7	112.62	10	22 48 20.79	2 19 13.7	130.07
11	20 57 16.15	12 4 42.0	113.38	11	22 50 37.08	2 6 13.3	130.04
12	20 59 43.88	11 53 21.7	114.12	12	22 52 53.19	1 53 13.1	130.00
13	21 2 11.34	11 41 57.0	114.84	13	22 55 9.11	1 40 13.1	129.96
14	21 4 38.54	11 30 28.0	115.55	14	22 57 24.85	1 27 13.3	129.89
15	21 7 5.46	11 18 54.7	116.24	15	22 59 40.41	1 14 14.0	129.81
16	21 9 32.10	11 7 17.2	116.91	16	23 1 55.79	1 1 15.1	129.72
17	21 11 58.48	10 55 35.7	117.57	17	23 4 11.00	0 48 16.8	129.61
18	21 14 24.58	10 43 50.3	118.21	18	23 6 26.04	0 35 19.2	129.50
19	21 16 50.42	10 32 1.0	118.83	19	23 8 40.91	0 22 22.2	129.37
20	21 19 15.98	10 20 8.0	119.43	20	23 10 55.62	S. 0 9 26.0	129.22
21	21 21 41.27	10 8 11.4	120.03	21	23 13 10.17	N. 0 3 29.3	129.06
22	21 24 6.30	9 56 11.3	120.60	22	23 15 24.56	0 16 23.7	128.88
23	21 26 31.05	9 44 7.7	121.15	23	23 17 38.79	0 29 17.0	128.70
	21 28 55.54	S. 9 32 0.8		24	23 19 52.87	N. 0 42 9.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 13.				FRIDAY 15.			
0	^h 23 ^m 19 ^s 52.87	N. 0 42 9.2	128.50	0	^h 1 5 9.60	N. 10 16 7.7	106.40
1	23 22 6.80	0 55 0.2	128.30	1	1 7 19.86	10 26 46.1	105.72
2	23 24 20.59	1 7 50.0	128.08	2	1 9 30.10	10 37 20.4	105.03
3	23 26 34.23	1 20 38.5	127.85	3	1 11 40.34	10 47 50.6	104.33
4	23 28 47.74	1 33 25.6	127.60	4	1 13 50.56	10 58 16.5	103.63
5	23 31 1.10	1 46 11.2	127.34	5	1 16 0.78	11 8 38.3	102.92
6	23 33 14.34	1 58 55.2	127.07	6	1 18 10.99	11 18 55.8	102.20
7	23 35 27.45	2 11 37.6	126.79	7	1 20 21.19	11 29 8.9	101.48
8	23 37 40.42	2 24 18.3	126.49	8	1 22 31.40	11 39 17.8	100.74
9	23 39 53.28	2 36 57.3	126.18	9	1 24 41.60	11 49 22.2	100.00
10	23 42 6.01	2 49 34.4	125.87	10	1 26 51.81	11 59 22.2	99.25
11	23 44 18.63	3 2 9.6	125.54	11	1 29 2.01	12 9 17.7	98.50
12	23 46 31.14	3 14 42.9	125.20	12	1 31 12.23	12 19 8.6	97.74
13	23 48 43.53	3 27 14.1	124.85	13	1 33 22.45	12 28 55.0	96.97
14	23 50 55.82	3 39 43.2	124.49	14	1 35 32.67	12 38 36.8	96.20
15	23 53 7.99	3 52 10.2	124.12	15	1 37 42.91	12 48 14.0	95.42
16	23 55 20.07	4 4 34.9	123.73	16	1 39 53.16	12 57 46.5	94.63
17	23 57 32.05	4 16 57.3	123.33	17	1 42 3.41	13 7 14.3	93.83
18	23 59 43.93	4 29 17.3	122.93	18	1 44 13.69	13 16 37.3	93.03
19	0 1 55.72	4 41 34.9	122.52	19	1 46 23.97	13 25 55.5	92.23
20	0 4 7.41	4 53 50.1	122.10	20	1 48 34.28	13 35 9.0	91.42
21	0 6 19.02	5 6 2.7	121.66	21	1 50 44.60	13 44 17.5	90.60
22	0 8 30.55	5 18 12.6	121.22	22	1 52 54.93	13 53 21.1	89.78
23	0 10 41.99	N. 5 30 19.9	120.77	23	1 55 5.29	N. 14 2 19.8	88.95
THURSDAY 14.				SATURDAY 16.			
0	0 12 53.36	N. 5 42 24.5	120.30	0	1 57 15.67	N. 14 11 13.5	88.12
1	0 15 4.65	5 54 26.3	119.82	1	1 59 26.07	14 20 2.2	87.28
2	0 17 15.87	6 6 25.2	119.33	2	2 1 36.50	14 28 45.9	86.43
3	0 19 27.01	6 18 21.2	118.83	3	2 3 46.95	14 37 24.5	85.58
4	0 21 38.09	6 30 14.2	118.33	4	2 5 57.42	14 45 58.0	84.72
5	0 23 49.11	6 42 4.2	117.82	5	2 8 7.92	14 54 26.3	83.86
6	0 26 0.06	6 53 51.1	117.30	6	2 10 18.45	15 2 49.5	82.99
7	0 28 10.96	7 5 34.9	116.77	7	2 12 29.00	15 11 7.4	82.12
8	0 30 21.79	7 17 15.5	116.23	8	2 14 39.57	15 19 20.1	81.24
9	0 32 32.58	7 28 52.9	115.67	9	2 16 50.18	15 27 27.6	80.36
10	0 34 43.31	7 40 26.9	115.10	10	2 19 0.81	15 35 29.7	79.47
11	0 36 54.00	7 51 57.6	114.53	11	2 21 11.47	15 43 26.6	78.58
12	0 39 4.63	8 3 24.8	113.97	12	2 23 22.16	15 51 18.0	77.68
13	0 41 15.23	8 14 48.6	113.38	13	2 25 32.88	15 59 4.1	76.78
14	0 43 25.78	8 26 8.9	112.80	14	2 27 43.63	16 6 44.8	75.87
15	0 45 36.29	8 37 25.7	112.20	15	2 29 54.41	16 14 20.0	74.96
16	0 47 46.77	8 48 38.8	111.58	16	2 32 5.22	16 21 49.8	74.04
17	0 49 57.22	8 59 48.3	110.95	17	2 34 16.06	16 29 14.0	73.12
18	0 52 7.63	9 10 54.0	110.33	18	2 36 26.93	16 36 32.8	72.19
19	0 54 18.02	9 21 56.0	109.70	19	2 38 37.84	16 43 45.9	71.26
20	0 56 28.38	9 32 54.2	109.05	20	2 40 48.78	16 50 53.5	70.33
21	0 58 38.72	9 43 48.5	108.40	21	2 42 59.74	16 57 55.5	69.39
22	1 0 49.03	9 54 38.9	107.74	22	2 45 10.74	17 4 51.8	68.45
23	1 2 59.32	10 5 25.3	107.08	23	2 47 21.77	17 11 42.5	67.50
24	1 5 9.60	N. 10 16 7.7		24	2 49 32.83	N. 17 18 27.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
SUNDAY 17.				TUESDAY 19.			
0	h m s	N. 17 18 27.4	66.55	0	h m s	N. 20 44 55.2	17.70
1	2 49 32.83	17 25 6.7	65.58	1	4 34 44.63	20 46 41.4	16.65
2	2 51 43.92	17 31 40.2	64.62	2	4 36 56.02	20 48 21.3	15.60
3	2 53 55.04	17 38 7.9	63.67	3	4 39 7.38	20 49 55.0	14.55
4	2 56 6.19	17 44 29.9	62.70	4	4 41 18.70	20 51 22.3	13.50
5	2 58 17.38	17 50 46.1	61.72	5	4 43 29.98	20 52 43.3	12.47
6	3 0 28.59	17 56 56.4	60.75	6	4 45 41.23	20 53 58.1	11.42
7	3 2 39.83	18 3 0.9	59.78	7	4 47 52.43	20 55 6.6	10.37
8	3 4 51.09	18 8 59.6	58.80	8	4 50 3.59	20 56 8.8	9.33
9	3 7 2.39	18 14 52.3	57.82	9	4 52 14.70	20 57 4.8	8.28
10	3 9 13.71	18 20 39.2	56.82	10	4 54 25.76	20 57 54.5	7.23
11	3 11 25.06	18 26 20.1	55.83	11	4 56 36.77	20 58 37.9	6.18
12	3 13 36.43	18 31 55.1	54.83	12	4 58 47.73	20 59 15.0	5.15
13	3 15 47.83	18 37 24.1	53.84	13	5 0 58.64	20 59 45.9	4.12
14	3 17 59.25	18 42 47.2	52.83	14	5 3 9.49	21 0 10.5	3.08
15	3 20 10.70	18 48 4.2	51.83	15	5 5 20.28	21 0 29.0	2.03
16	3 22 22.17	18 53 15.2	50.83	16	5 7 31.00	21 0 41.2	0.98
17	3 24 33.65	18 58 20.2	49.82	17	5 9 41.67	21 0 47.1	0.04
18	3 26 45.16	19 3 19.1	48.82	18	5 11 52.26	21 0 46.9	1.07
19	3 28 56.69	19 8 12.0	47.80	19	5 14 2.79	21 0 40.5	2.10
20	3 31 8.24	19 12 58.8	46.78	20	5 16 13.25	21 0 27.9	3.13
21	3 33 19.80	19 17 39.5	45.77	21	5 18 23.63	21 0 9.1	4.17
22	3 35 31.38	19 22 14.1	44.75	22	5 20 33.94	20 59 44.1	5.18
23	3 37 42.97	19 26 42.6	43.72	23	5 22 44.17	20 59 13.0	6.20
24	3 39 54.58	N. 19 26 42.6	43.72	24	5 24 54.32	N. 20 59 13.0	6.20
MONDAY 18.				WEDNESDAY 20.			
0	3 42 6.20	N. 19 31 4.9	42.70	0	5 27 4.39	N. 20 58 35.8	7.23
1	3 44 17.83	19 35 21.1	41.67	1	5 29 14.38	20 57 52.4	8.25
2	3 46 29.47	19 39 31.1	40.65	2	5 31 24.28	20 57 3.0	9.27
3	3 48 41.12	19 43 35.0	39.62	3	5 33 34.09	20 56 7.4	10.28
4	3 50 52.78	19 47 32.7	38.58	4	5 35 43.81	20 55 5.7	11.28
5	3 53 4.44	19 51 24.2	37.55	5	5 37 53.44	20 53 58.0	12.28
6	3 55 16.10	19 55 9.5	36.50	6	5 40 2.98	20 52 44.3	13.30
7	3 57 27.76	19 58 48.5	35.47	7	5 42 12.43	20 51 24.5	14.30
8	3 59 39.43	20 2 21.4	34.43	8	5 44 21.77	20 49 58.7	15.30
9	4 1 51.09	20 5 48.0	33.40	9	5 46 31.01	20 48 26.9	16.30
10	4 4 2.75	20 9 8.4	32.37	10	5 48 40.15	20 46 49.1	17.28
11	4 6 14.40	20 12 22.6	31.32	11	5 50 49.19	20 45 5.4	18.28
12	4 8 26.05	20 15 30.4	30.27	12	5 52 58.12	20 43 15.7	19.27
13	4 10 37.69	20 18 32.0	29.22	13	5 55 6.94	20 41 20.1	20.27
14	4 12 49.32	20 21 27.3	28.18	14	5 57 15.66	20 39 18.5	21.25
15	4 15 0.94	20 24 16.4	27.13	15	5 59 24.26	20 37 11.1	22.22
16	4 17 12.54	20 26 59.2	26.08	16	6 1 32.74	20 34 57.8	23.18
17	4 19 24.12	20 29 35.7	25.03	17	6 3 41.12	20 32 38.7	24.15
18	4 21 35.69	20 32 5.9	24.00	18	6 5 49.37	20 30 13.8	25.12
19	4 23 47.24	20 34 29.8	22.95	19	6 7 57.50	20 27 43.0	26.08
20	4 25 58.77	20 36 47.5	21.90	20	6 10 5.51	20 25 6.5	27.03
21	4 28 10.28	20 38 58.9	20.85	21	6 12 13.40	20 22 24.3	28.00
22	4 30 21.75	20 41 4.0	19.80	22	6 14 21.17	20 19 36.3	28.96
23	4 32 33.21	20 43 2.8	18.75	23	6 16 28.81	20 16 42.5	29.90
24	4 34 44.63	N. 20 44 55.2	18.75	24	6 18 36.31	N. 20 13 43.2	29.90

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 21.				SATURDAY 23.			
0	6 ^h 18 ^m 36 ^s 31	N. 20 13 43 2	30 83	0	7 ^h 57 ^m 43 ^s 41	N. 16 8 14 8	70 18
1	6 20 43 69	20 10 38 2	31 78	1	7 59 43 43	16 1 13 8	70 85
2	6 22 50 94	20 7 27 5	32 72	2	8 1 43 29	15 54 8 7	71 50
3	6 24 58 06	20 4 11 2	33 65	3	8 3 42 99	15 46 59 7	72 17
4	6 27 5 04	20 0 49 3	34 57	4	8 5 42 53	15 39 46 6	72 83
5	6 29 11 89	19 57 21 9	35 50	5	8 7 41 91	15 32 29 5	73 48
6	6 31 18 60	19 53 48 9	36 41	6	8 9 41 13	15 25 8 6	74 13
7	6 33 25 17	19 50 10 5	37 32	7	8 11 40 20	15 17 43 8	74 78
8	6 35 31 61	19 46 26 6	38 23	8	8 13 39 10	15 10 15 1	75 42
9	6 37 37 90	19 42 37 2	39 13	9	8 15 37 85	15 2 42 6	76 05
10	6 39 44 04	19 38 42 4	40 03	10	8 17 36 45	14 55 6 4	76 67
11	6 41 50 05	19 34 42 2	40 92	11	8 19 34 90	14 47 26 4	77 28
12	6 43 55 90	19 30 36 7	41 80	12	8 21 33 19	14 39 42 7	77 88
13	6 46 1 61	19 26 25 8	42 68	13	8 23 31 33	14 31 55 4	78 48
14	6 48 7 18	19 22 9 7	43 58	14	8 25 29 31	14 24 4 5	79 08
15	6 50 12 60	19 17 48 2	44 45	15	8 27 27 14	14 16 10 0	79 68
16	6 52 17 87	19 13 21 5	45 32	16	8 29 24 82	14 8 11 9	80 27
17	6 54 22 98	19 8 49 6	46 18	17	8 31 22 35	14 0 10 4	80 85
18	6 56 27 95	19 4 12 5	47 03	18	8 33 19 74	13 52 5 3	81 40
19	6 58 32 76	18 59 30 3	47 88	19	8 35 16 97	13 43 56 9	81 97
20	7 0 37 42	18 54 43 0	48 74	20	8 37 14 06	13 35 45 1	82 53
21	7 2 41 93	18 49 50 5	49 58	21	8 39 11 01	13 27 29 9	83 08
22	7 4 46 28	18 44 53 0	50 42	22	8 41 7 81	13 19 11 4	83 62
23	7 6 50 48	N. 18 39 50 5	51 25	23	8 43 4 47	N. 13 10 49 7	84 15
FRIDAY 22.				SUNDAY 24.			
0	7 8 54 51	N. 18 34 43 0	52 08	0	8 45 0 99	N. 13 2 24 8	84 68
1	7 10 58 39	18 29 30 5	52 88	1	8 46 57 37	12 53 56 7	85 22
2	7 13 2 12	18 24 13 2	53 70	2	8 48 53 61	12 45 25 4	85 73
3	7 15 5 68	18 18 50 9	54 52	3	8 50 49 71	12 36 51 0	86 25
4	7 17 9 09	18 13 23 8	55 33	4	8 52 45 67	12 28 13 5	86 75
5	7 19 12 34	18 7 51 8	56 12	5	8 54 41 50	12 19 33 0	87 25
6	7 21 15 43	18 2 15 1	56 92	6	8 56 37 20	12 10 49 4	87 73
7	7 23 18 36	17 56 33 6	57 70	7	8 58 32 77	12 2 3 0	88 23
8	7 25 21 13	17 50 47 4	58 49	8	9 0 28 20	11 53 13 6	88 72
9	7 27 23 73	17 44 56 4	59 27	9	9 2 23 51	11 44 21 3	89 20
10	7 29 26 18	17 39 0 9	60 03	10	9 4 18 69	11 35 26 1	89 65
11	7 31 28 47	17 33 0 7	60 78	11	9 6 13 74	11 26 28 2	90 12
12	7 33 30 59	17 26 56 0	61 55	12	9 8 8 67	11 17 27 5	90 57
13	7 35 32 55	17 20 46 7	62 30	13	9 10 3 48	11 8 24 1	91 02
14	7 37 34 35	17 14 32 9	63 05	14	9 11 58 16	10 59 18 0	91 47
15	7 39 35 98	17 8 14 6	63 78	15	9 13 52 73	10 50 9 2	91 90
16	7 41 37 46	17 1 51 9	64 52	16	9 15 47 18	10 40 57 8	92 32
17	7 43 38 77	16 55 24 8	65 25	17	9 17 41 52	10 31 43 9	92 75
18	7 45 39 92	16 48 53 3	65 97	18	9 19 35 74	10 22 27 4	93 17
19	7 47 40 91	16 42 17 5	66 68	19	9 21 29 85	10 13 8 4	93 58
20	7 49 41 73	16 35 37 4	67 40	20	9 23 23 86	10 3 46 9	93 98
21	7 51 42 39	16 28 53 0	68 10	21	9 25 17 75	9 54 23 0	94 37
22	7 53 42 89	16 22 4 4	68 78	22	9 27 11 54	9 44 56 8	94 77
23	7 55 43 24	16 15 11 7	69 48	23	9 29 5 22	9 35 28 2	95 15
24	7 57 43 41	N. 16 8 14 8		24	9 30 58 80	N. 9 25 57 3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
MONDAY 25.				WEDNESDAY 27.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	9 30 58.80	N. 9 25 57.3	95.53	0	11 0 35.18	N. 1 16 17.4	106.35
1	9 32 52.28	9 16 24.1	95.90	1	11 2 26.64	1 5 39.3	106.43
2	9 34 45.67	9 6 48.7	96.25	2	11 4 18.13	0 55 0.7	106.50
3	9 36 38.96	8 57 11.2	96.63	3	11 6 9.65	0 44 21.8	106.57
4	9 38 32.15	8 47 31.4	96.98	4	11 8 1.19	0 33 42.4	106.62
5	9 40 25.26	8 37 49.5	97.32	5	11 9 52.77	0 23 2.7	106.65
6	9 42 18.27	8 28 5.6	97.67	6	11 11 44.38	0 12 22.8	106.70
7	9 44 11.20	8 18 19.6	98.00	7	11 13 36.03	N. 0 1 42.5	106.73
8	9 46 4.04	8 8 31.6	98.33	8	11 15 27.72	S. 0 8 57.9	106.77
9	9 47 56.80	7 58 41.6	98.65	9	11 17 19.45	0 19 38.5	106.80
10	9 49 49.48	7 48 49.7	98.97	10	11 19 11.24	0 30 19.3	106.82
11	9 51 42.07	7 38 55.9	99.27	11	11 21 3.07	0 41 0.2	106.82
12	9 53 34.59	7 29 0.3	99.57	12	11 22 54.96	0 51 41.1	106.83
13	9 55 27.04	7 19 2.9	99.88	13	11 24 46.90	1 2 22.1	106.83
14	9 57 19.41	7 9 3.6	100.17	14	11 26 38.90	1 13 3.1	106.83
15	9 59 11.72	6 59 2.7	100.45	15	11 28 30.97	1 23 44.1	106.82
16	10 1 3.96	6 49 0.0	100.72	16	11 30 23.10	1 34 25.0	106.80
17	10 2 56.13	6 38 55.7	101.00	17	11 32 15.30	1 45 5.8	106.77
18	10 4 48.24	6 28 49.7	101.27	18	11 34 7.57	1 55 46.4	106.73
19	10 6 40.29	6 18 42.1	101.52	19	11 35 59.91	2 6 26.8	106.70
20	10 8 32.29	6 8 33.0	101.77	20	11 37 52.34	2 17 7.1	106.65
21	10 10 24.22	5 58 22.4	102.02	21	11 39 44.84	2 27 47.0	106.60
22	10 12 16.11	5 48 10.3	102.25	22	11 41 37.43	2 38 26.6	106.55
23	10 14 7.94	N. 5 37 56.8	102.50	23	11 43 30.11	S. 2 49 5.9	106.47
TUESDAY 26.				THURSDAY 28.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	10 15 59.72	N. 5 27 41.8	102.72	0	11 45 22.88	S. 2 59 44.7	106.40
1	10 17 51.46	5 17 25.5	102.95	1	11 47 15.74	3 10 23.2	106.33
2	10 19 43.16	5 7 7.9	103.17	2	11 49 8.70	3 21 1.2	106.26
3	10 21 34.82	4 56 48.9	103.37	3	11 51 1.76	3 31 38.8	106.17
4	10 23 26.44	4 46 28.7	103.57	4	11 52 54.92	3 42 15.8	106.07
5	10 25 18.03	4 36 7.3	103.77	5	11 54 48.19	3 52 52.2	105.97
6	10 27 9.58	4 25 44.7	103.95	6	11 56 41.56	4 3 28.0	105.85
7	10 29 1.11	4 15 21.0	104.15	7	11 58 35.06	4 14 3.1	105.75
8	10 30 52.61	4 4 56.1	104.32	8	12 0 28.67	4 24 37.6	105.62
9	10 32 44.08	3 54 30.2	104.50	9	12 2 22.39	4 35 11.3	105.50
10	10 34 35.53	3 44 3.2	104.67	10	12 4 16.24	4 45 44.3	105.36
11	10 36 26.97	3 33 35.2	104.82	11	12 6 10.21	4 56 16.4	105.22
12	10 38 18.39	3 23 6.3	104.97	12	12 8 4.31	5 6 47.7	105.07
13	10 40 9.80	3 12 36.5	105.13	13	12 9 58.54	5 17 18.1	104.90
14	10 42 1.19	3 2 5.7	105.27	14	12 11 52.91	5 27 47.5	104.75
15	10 43 52.58	2 51 34.1	105.40	15	12 13 47.42	5 38 16.0	104.58
16	10 45 43.96	2 41 1.7	105.53	16	12 15 42.07	5 48 43.5	104.40
17	10 47 35.34	2 30 28.5	105.65	17	12 17 36.86	5 59 9.8	104.22
18	10 49 26.72	2 19 54.5	105.77	18	12 19 31.80	6 9 35.1	104.03
19	10 51 18.11	2 9 19.9	105.88	19	12 21 26.90	6 19 59.3	103.83
20	10 53 9.50	1 58 44.6	105.99	20	12 23 22.14	6 30 22.3	103.62
21	10 55 0.90	1 48 8.6	106.08	21	12 25 17.55	6 40 44.0	103.42
22	10 56 52.31	1 37 32.1	106.18	22	12 27 13.12	6 51 4.5	103.20
23	10 58 43.74	1 26 55.0	106.27	23	12 29 8.85	7 1 23.6	102.97
24	11 0 35.18	N. 1 16 17.4		24	12 31 4.74	S. 7 11 41.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 29.				SUNDAY 31.			
0	h m s	S. ° ' "	"	0	h m s	S. ° ' "	"
1	12 31 4 ⁷⁴	7 11 41 ⁴	102 ⁷³	1	14 8 5 ³⁵	14 44 17 ⁸	82 ²⁰
2	12 33 0 ⁸¹	7 21 57 ⁸	102 ⁵⁰	2	14 10 13 ¹⁵	14 52 31 ⁰	81 ⁵⁵
3	12 34 57 ⁰⁵	7 32 12 ⁸	102 ²⁵	3	14 12 21 ²⁶	15 0 40 ³	80 ⁹⁰
4	12 36 53 ⁴⁷	7 42 26 ³	101 ⁹⁸	4	14 14 29 ⁶⁹	15 8 45 ⁷	80 ²³
5	12 38 50 ⁰⁷	7 52 38 ²	101 ⁷³	5	14 16 38 ⁴²	15 16 47 ¹	79 ⁵⁷
6	12 40 46 ⁸⁵	8 2 48 ⁶	101 ⁴⁷	6	14 18 47 ⁴⁷	15 24 44 ⁵	78 ⁸⁸
7	12 42 43 ⁸²	8 12 57 ⁴	101 ¹⁸	7	14 20 56 ⁸⁴	15 32 37 ⁸	78 ¹⁸
8	12 44 40 ⁹⁸	8 23 4 ⁵	100 ⁹⁰	8	14 23 6 ⁵³	15 40 26 ⁹	77 ⁴⁷
9	12 46 38 ³³	8 33 9 ⁹	100 ⁶¹	9	14 25 16 ⁵³	15 48 11 ⁷	76 ⁷⁵
10	12 48 35 ⁸⁸	8 43 13 ⁶	100 ³⁰	10	14 27 26 ⁸⁶	15 55 52 ³	76 ⁰³
11	12 50 33 ⁶³	8 53 15 ⁴	100 ⁰⁰	11	14 29 37 ⁵¹	16 3 28 ⁵	75 ³⁰
12	12 52 31 ⁵⁸	9 3 15 ⁴	99 ⁶⁸	12	14 31 48 ⁴⁹	16 11 0 ⁴	74 ⁵⁵
13	12 54 29 ⁷³	9 13 13 ⁵	99 ³⁷	13	14 33 59 ⁷⁹	16 18 27 ⁷	73 ⁸⁰
14	12 56 28 ⁰⁹	9 23 9 ⁷	99 ⁰³	14	14 36 11 ⁴²	16 25 50 ⁵	73 ⁰⁵
15	12 58 26 ⁶⁷	9 33 3 ⁹	98 ⁷⁰	15	14 38 23 ³⁸	16 33 8 ⁸	72 ²⁷
16	13 0 25 ⁴⁶	9 42 56 ¹	98 ³⁵	16	14 40 35 ⁶⁸	16 40 22 ⁴	71 ⁴⁷
17	13 2 24 ⁴⁷	9 52 46 ²	98 ⁰⁰	17	14 42 48 ³⁰	16 47 31 ²	70 ⁶⁸
18	13 4 23 ⁶⁹	10 2 34 ³	97 ⁶³	18	14 45 1 ²⁶	16 54 35 ³	69 ⁸⁷
19	13 6 23 ¹⁵	10 12 20 ¹	97 ²⁷	19	14 47 14 ⁵⁵	17 1 34 ⁵	69 ⁰⁵
20	13 8 22 ⁸³	10 22 3 ⁷	96 ⁹⁰	20	14 49 28 ¹⁸	17 8 28 ⁹	68 ²³
21	13 10 22 ⁷⁴	10 31 45 ¹	96 ⁵²	21	14 51 42 ¹⁴	17 15 18 ³	67 ³⁹
22	13 12 22 ⁸⁸	10 41 24 ²	96 ¹²	22	14 53 56 ⁴⁴	17 22 2 ⁶	66 ⁵⁴
23	13 14 23 ²⁶	10 51 0 ⁸	95 ⁷²	23	14 56 11 ⁰⁸	17 28 41 ⁹	65 ⁶⁸
24	13 16 23 ⁸⁸	S. 11 0 35 ¹	95 ³⁰	24	14 58 26 ⁰⁶	S. 17 35 16 ⁰	64 ⁸²
SATURDAY 30.				MONDAY, FEB. 1.			
0	13 18 24 ⁷⁴	S. 11 10 6 ⁹	94 ⁸⁸	0	15 0 41 ³⁷	S. 17 41 44 ⁸	
1	13 20 25 ⁸⁵	11 19 36 ²	94 ⁴⁶				
2	13 22 27 ²⁰	11 29 3 ⁰	94 ⁰²				
3	13 24 28 ⁸¹	11 38 27 ¹	93 ⁵⁸				
4	13 26 30 ⁶⁷	11 47 48 ⁶	93 ¹³				
5	13 28 32 ⁷⁸	11 57 7 ⁴	92 ⁶⁸				
6	13 30 35 ¹⁶	12 6 23 ⁵	92 ²⁰				
7	13 32 37 ⁸⁰	12 15 36 ⁷	91 ⁷²				
8	13 34 40 ⁷⁰	12 24 47 ⁰	91 ²³				
9	13 36 43 ⁸⁷	12 33 54 ⁴	90 ⁷³				
10	13 38 47 ³¹	12 42 58 ⁸	90 ²³				
11	13 40 51 ⁰³	12 52 0 ²	89 ⁷²				
12	13 42 55 ⁰²	13 0 58 ⁵	89 ²⁰				
13	13 44 59 ²⁹	13 9 53 ⁷	88 ⁶⁷				
14	13 47 3 ⁸⁴	13 18 45 ⁷	88 ¹²				
15	13 49 8 ⁶⁷	13 27 34 ⁴	87 ⁵⁷				
16	13 51 13 ⁷⁹	13 36 19 ⁸	87 ⁰²				
17	13 53 19 ²⁰	13 45 1 ⁹	86 ⁴⁵				
18	13 55 24 ⁹⁰	13 53 40 ⁶	85 ⁸⁷				
19	13 57 30 ⁸⁹	14 2 15 ⁸	85 ²⁸				
20	13 59 37 ¹⁸	14 10 47 ⁵	84 ⁶⁸				
21	14 1 43 ⁷⁷	14 19 15 ⁶	84 ⁰⁷				
22	14 3 50 ⁶⁶	14 27 40 ⁰	83 ⁴⁶				
23	14 5 57 ⁸⁵	14 36 0 ⁸	82 ⁸³				
24	14 8 5 ³⁵	S. 14 44 17 ⁸					

PHASES OF THE MOON.

	d	h	m
(Last Quarter -	1	19	39 ¹
● New Moon -	8	19	45 ⁶
) First Quarter -	15	11	6 ⁰
○ Full Moon -	23	10	2 ⁵
(Last Quarter -	31	12	17 ³

	d	h
(Perigee -	9	14
(Apogee -	24	9

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	Pollux W.	70 31 4 3019		72 0 53 3006		73 30 58 2993		75 1 20 2980	
	Regulus W.	33 29 57 2998		35 0 12 2981		36 30 48 2965		38 1 44 2949	
	Jupiter E.	49 35 20 2997		48 5 4 2985		46 34 33 2973		45 3 46 2961	
	Venus E.	54 17 44 3358		52 54 39 3345		51 31 20 3332		50 7 46 3319	
	Antares E.	66 30 3 2956		64 58 55 2945		63 27 33 2934		61 55 57 2922	
	Mars E.	69 51 45 3191		68 25 25 3180		66 58 52 3167		65 32 3 3154	
	SUN E.	99 13 56 3318		97 50 5 3306		96 26 0 3292		95 1 39 3279	
2	Pollux W.	82 37 31 2907		84 9 41 2891		85 42 11 2876		87 15 0 2861	
	Regulus W.	45 41 32 2867		47 14 33 2851		48 47 55 2833		50 21 40 2817	
	Jupiter E.	37 25 49 2892		35 53 20 2877		34 20 32 2862		32 47 25 2847	
	Venus E.	43 5 55 3247		41 40 41 3231		40 15 8 3215		38 49 16 3199	
	Antares E.	54 14 4 2859		52 40 53 2845		51 7 24 2831		49 33 37 2818	
	Mars E.	58 13 52 3082		56 45 21 3067		55 16 31 3050		53 47 20 3034	
	SUN E.	87 55 51 3204		86 29 47 3189		85 3 25 3173		83 36 44 3156	
3	Pollux W.	95 4 17 2779		96 39 13 2762		98 14 31 2744		99 50 12 2728	
	Regulus W.	58 16 2 2728		59 52 5 2710		61 28 32 2690		63 5 25 2672	
	Antares E.	41 40 8 2747		40 4 30 2733		38 28 34 2718		36 52 18 2705	
	Mars E.	46 16 19 2947		44 45 0 2930		43 13 19 2912		41 41 15 2893	
	SUN E.	76 18 3 3066		74 49 12 3048		73 19 59 3030		71 50 23 3010	
4	Regulus W.	71 16 10 2577		72 55 37 2557		74 35 32 2538		76 15 53 2518	
	Saturn W.	21 57 0 2714		23 33 21 2676		25 10 33 2642		26 48 31 2610	
	Spica W.	17 14 47 2558		18 54 39 2539		20 34 58 2520		22 15 44 2499	
	Mars E.	33 54 48 2797		32 20 16 2777		30 45 18 2758		29 9 55 2739	
	SUN E.	64 16 16 2911		62 44 11 2891		61 11 41 2870		59 38 44 2851	
5	Regulus W.	84 44 28 2420		86 27 34 2401		88 11 7 2383		89 55 6 2364	
	Saturn W.	35 8 28 2474		36 50 17 2450		38 32 40 2427		40 15 36 2405	
	Spica W.	30 46 31 2401		32 30 4 2382		34 14 4 2364		35 58 31 2344	
	SUN E.	51 47 30 2750		50 11 56 2730		48 35 56 2711		46 59 30 2692	
6	Saturn W.	48 58 8 2300		50 44 8 2280		52 30 37 2262		54 17 33 2243	
	Spica W.	44 47 37 2252		46 34 47 2235		48 22 22 2218		50 10 22 2201	
	SUN E.	38 51 4 2601		37 12 10 2585		35 32 54 2569		33 53 16 2554	
11	SUN W.	31 16 59 2377		33 1 6 2384		34 45 4 2392		36 28 50 2401	
	α Arietis E.	73 39 26 2082		71 47 59 2092		69 56 48 2104		68 5 55 2115	
	Aldebaran E.	106 45 21 2048		104 53 1 2057		103 0 55 2066		101 9 4 2077	
12	SUN W.	45 4 10 2457		46 46 24 2470		48 28 19 2484		50 9 54 2498	
	α Arietis E.	58 56 16 2185		57 7 25 2201		55 18 59 2218		53 30 58 2235	
	Aldebaran E.	91 54 3 2137		90 4 0 2150		88 14 16 2164		86 24 54 2178	
13	SUN W.	58 32 38 2577		60 12 5 2593		61 51 9 2611		63 29 49 2627	
	Fomalhaut W.	31 50 36 4720		32 51 19 4496		33 55 14 4307		35 2 0 4146	
	α Arietis E.	44 37 42 2334		42 52 33 2356		41 7 55 2380		39 23 52 2405	
	Aldebaran E.	77 23 33 2254		75 36 26 2270		73 49 43 2286		72 3 23 2303	
	Pollux E.	119 20 12 2342		117 35 14 2355		115 50 35 2368		114 6 14 2382	
14	SUN W.	71 37 21 2716		73 13 40 2734		74 49 35 2751		76 25 7 2769	
	Fomalhaut W.	41 8 20 3626		42 26 26 3561		43 45 43 3506		45 6 1 3458	
	Aldebaran E.	63 17 53 2387		61 34 0 2405		59 50 33 2422		58 8 29 2440	

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Pollux W.	76 31 58	2966	78 2 54	2951	79 34 8	2937	81 5 40	2922
	Regulus W.	39 33 0	2933	41 4 37	2916	42 36 35	2901	44 8 53	2884
	Jupiter E.	43 32 44	2948	42 1 26	2935	40 29 51	2921	38 57 59	2907
	Venus E.	48 43 57	3306	47 19 52	3291	45 55 30	3276	44 30 51	3262
	Antares E.	60 24 6	2909	58 51 59	2898	57 19 37	2885	55 46 59	2872
	Mars E.	64 4 58	3141	62 37 38	3126	61 10 0	3112	59 42 5	3097
	SUN E.	93 37 3	3265	92 12 11	3251	90 47 2	3236	89 21 35	3221
2	Pollux W.	88 48 9	2845	90 21 39	2828	91 55 30	2811	93 29 43	2795
	Regulus W.	51 55 46	2799	53 30 15	2782	55 5 7	2763	56 40 23	2746
	Jupiter E.	31 13 59	2831	29 40 12	2815	28 6 4	2799	26 31 35	2783
	Venus E.	37 23 5	3182	35 56 34	3165	34 29 43	3148	33 2 31	3130
	Antares E.	47 59 32	2804	46 25 9	2790	44 50 28	2775	43 15 27	2761
	Mars E.	52 17 50	3018	50 48 0	3001	49 17 48	2983	47 47 14	2966
	SUN E.	82 9 42	3138	80 42 19	3121	79 14 35	3104	77 46 30	3086
3	Pollux W.	101 26 15	2711	103 2 41	2693	104 39 31	2675	106 16 44	2658
	Regulus W.	64 42 42	2653	66 20 25	2634	67 58 34	2615	69 37 9	2596
	Antares E.	35 15 45	2692	33 38 54	2679	32 1 46	2667	30 24 22	2656
	Mars E.	40 8 47	2873	38 35 54	2855	37 2 37	2835	35 28 55	2816
	SUN E.	70 20 23	2990	68 49 58	2971	67 19 9	2951	65 47 55	2931
4	Regulus W.	77 56 41	2498	79 37 57	2479	81 19 40	2459	83 1 51	2440
	Saturn W.	28 27 12	2580	30 6 34	2552	27 46 35	2525	25 27 13	2499
	Spica W.	23 56 59	2480	25 38 40	2460	21 20 50	2440	20 3 27	2421
	Mars E.	27 34 7	2719	25 57 53	2700	24 21 13	2682	22 44 9	2663
	SUN E.	58 5 22	2830	56 31 33	2810	54 57 18	2790	53 22 37	2770
5	Regulus W.	91 39 33	2345	93 24 28	2327	95 9 48	2308	96 55 36	2291
	Saturn W.	41 59 4	2382	43 43 4	2360	45 27 36	2340	47 12 37	2320
	Spica W.	37 43 26	2325	39 28 49	2307	41 14 38	2288	43 0 55	2271
	SUN E.	45 22 39	2672	43 45 22	2654	42 7 40	2636	40 29 34	2618
6	Saturn W.	56 4 56	2225	57 52 46	2208	59 41 1	2192	61 29 41	2176
	Spica W.	51 58 48	2185	53 47 38	2169	55 36 52	2154	57 26 29	2139
	SUN E.	32 13 18	2540	30 33 0	2527	28 52 25	2515	27 11 33	2506
11	SUN W.	38 12 24	2410	39 55 44	2421	41 38 49	2432	43 21 38	2444
	α Arietis E.	66 15 19	2128	64 25 2	2141	62 35 5	2155	60 45 29	2170
	Aldebaran E.	99 17 30	2087	97 26 11	2099	95 35 10	2111	93 44 27	2123
12	SUN W.	51 51 10	2514	53 32 4	2529	55 12 37	2544	56 52 49	2561
	α Arietis E.	51 43 23	2253	49 56 15	2272	48 9 35	2292	46 23 24	2312
	Aldebaran E.	84 35 53	2192	82 47 14	2207	80 58 57	2223	79 11 3	2239
13	SUN W.	65 8 7	2645	66 46 1	2663	68 23 31	2680	70 0 38	2698
	Fomalhaut W.	36 11 17	4008	37 22 49	3890	38 36 19	3788	39 51 34	3701
	α Arietis E.	37 40 24	2431	35 57 33	2458	34 15 21	2487	32 33 50	2519
	Aldebaran E.	70 17 28	2320	68 31 58	2336	66 46 51	2354	65 2 19	2371
	Pollux E.	112 22 14	2396	110 38 33	2410	108 55 13	2425	107 12 14	2440
14	SUN W.	78 0 16	2788	79 35 0	2805	81 9 21	2822	82 43 20	2840
	Fomalhaut W.	46 27 12	3416	47 49 10	3381	49 11 48	3351	50 35 1	3325
	Aldebaran E.	56 24 51	2457	54 42 37	2475	53 0 48	2492	51 19 23	2500

MEAN TIME.
LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
14	Pollux E.	105 29 37	2455	103 47 21	2471	102 5 27	2486	100 23 54	2502
15	SUN W.	84 16 56	2858	85 50 9	2876	87 22 59	2892	88 55 28	2909
	Fomalhaut W.	51 58 43	3303	53 22 51	3285	54 47 20	3270	56 12 6	3258
	α Pegasi W.	31 18 39	3076	32 47 18	3042	34 16 39	3015	35 46 33	2994
	Aldebaran E.	49 38 22	2526	47 57 45	2543	46 17 32	2561	44 37 43	2579
	Pollux E.	92 1 45	2582	90 22 25	2598	88 43 28	2614	87 4 52	2630
16	SUN W.	96 32 28	2993	98 2 50	3009	99 32 52	3024	101 2 35	3040
	Fomalhaut W.	63 18 46	3227	64 44 24	3225	66 10 4	3225	67 35 43	3226
	α Pegasi W.	43 21 6	2942	44 52 32	2939	46 24 2	2937	47 55 34	2937
	Aldebaran E.	36 24 37	2665	34 47 10	2683	33 10 8	2701	31 33 30	2720
	Pollux E.	78 57 18	2710	77 20 51	2726	75 44 45	2741	74 8 59	2756
17	SUN W.	108 26 27	3113	109 54 21	3128	111 21 57	3141	112 49 17	3154
	Fomalhaut W.	74 43 24	3243	76 8 42	3249	77 33 53	3255	78 58 57	3261
	α Pegasi W.	55 32 44	2952	57 3 57	2957	58 35 4	2962	60 6 4	2968
	Pollux E.	66 15 12	2832	64 41 26	2848	63 8 0	2862	61 34 52	2877
	Regulus E.	102 47 22	2759	101 12 0	2770	99 36 53	2783	98 2 3	2795
18	SUN W.	120 2 1	3217	121 27 50	3229	122 53 25	3241	124 18 46	3253
	Fomalhaut W.	86 2 12	3301	87 26 22	3310	88 50 22	3319	90 14 11	3330
	α Pegasi W.	67 39 11	3000	69 9 24	3006	70 39 29	3013	72 9 25	3021
	α Arietis W.	24 6 27	3093	25 34 45	3075	27 3 25	3061	28 32 22	3051
	Pollux E.	53 54 5	2953	52 22 53	2969	50 52 1	2984	49 21 28	3001
	Regulus E.	90 11 35	2849	88 38 11	2860	87 5 1	2870	85 32 3	2880
19	SUN W.	131 22 16	3305	132 46 22	3316	134 10 15	3325	135 33 58	3336
	α Pegasi W.	79 36 57	3055	81 6 2	3062	82 34 58	3069	84 3 46	3075
	α Arietis W.	35 59 21	3030	37 28 57	3030	38 58 33	3030	40 28 9	3031
	Pollux E.	41 53 58	3089	40 25 35	3109	38 57 36	3130	37 30 3	3153
	Regulus E.	77 50 18	2925	76 18 31	2934	74 46 55	2942	73 15 29	2950
20	α Pegasi W.	91 25 42	3109	92 53 40	3115	94 21 31	3122	95 49 14	3129
	α Arietis W.	47 55 39	3041	49 25 1	3044	50 54 19	3047	52 23 34	3049
	Regulus E.	65 40 43	2986	64 10 13	2993	62 39 52	3000	61 9 39	3006
	Saturn E.	115 47 0	2991	114 16 36	2997	112 46 20	3002	111 16 10	3008
21	α Arietis W.	59 48 55	3064	61 17 48	3067	62 46 38	3071	64 15 23	3073
	Aldebaran W.	26 29 50	3067	27 58 40	3066	29 27 31	3066	30 56 22	3065
	Regulus E.	53 40 32	3037	52 11 5	3043	50 41 45	3049	49 12 33	3055
	Saturn E.	103 46 54	3031	102 17 20	3035	100 47 51	3039	99 18 27	3044
	Spica E.	107 25 20	3066	105 55 14	3011	104 25 15	3014	102 55 20	3019
22	α Arietis W.	71 38 22	3087	73 6 48	3089	74 35 11	3091	76 3 31	3094
	Aldebaran W.	38 20 35	3069	39 49 22	3071	41 18 7	3072	42 46 51	3073
	Regulus E.	41 48 19	3084	40 19 49	3091	38 51 28	3096	37 23 13	3103
	Saturn E.	91 52 39	3061	90 23 42	3064	88 54 48	3068	87 25 59	3070
	Spica E.	95 27 3	3038	93 57 37	3041	92 28 15	3043	90 58 56	3047
23	α Arietis W.	83 24 30	3104	84 52 35	3106	86 20 37	3107	87 48 38	3109
	Aldebaran W.	50 10 6	3079	51 38 41	3081	53 7 14	3082	54 35 45	3083
	Saturn E.	80 2 41	3083	78 34 10	3085	77 5 42	3087	75 37 16	3089
	Spica E.	83 33 14	3060	82 4 15	3061	80 35 18	3063	79 6 23	3065
	Jupiter E.	115 41 59	3110	114 14 2	3112	112 46 7	3114	111 18 14	3115

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
14	Pollux E.	98 42 44 2518		97 1 56 2534		95 21 30 2550		93 41 26 2566	
15	Sun W.	90 27 35 2927		91 59 19 2943		93 30 43 2960		95 1 46 2977	
	Fomalhaut W.	57 37 7 3248		59 2 20 3239		60 27 43 3234		61 53 12 3230	
	α Pegasi W.	37 16 54 2977		38 47 36 2963		40 18 35 2953		41 49 46 2946	
	Aldebaran E.	42 58 19 2596		41 19 18 2613		39 40 40 2631		38 2 27 2648	
	Pollux E.	85 26 38 2647		83 48 46 2663		82 11 16 2678		80 34 6 2694	
16	Sun W.	102 31 58 3055		104 1 3 3070		105 29 49 3085		106 58 17 3100	
	Fomalhaut W.	69 1 22 3228		70 26 58 3231		71 52 31 3234		73 18 0 3238	
	α Pegasi W.	49 27 6 2939		50 58 35 2941		52 30 2 2944		54 1 26 2948	
	Aldebaran E.	29 57 17 2739		28 21 29 2759		26 46 7 2779		25 11 11 2801	
	Pollux E.	72 33 33 2772		70 58 28 2787		69 23 43 2802		67 49 18 2817	
17	Sun W.	114 16 21 3168		115 43 9 3181		117 9 41 3193		118 35 58 3205	
	Fomalhaut W.	80 23 54 3269		81 48 42 3276		83 13 21 3284		84 37 51 3292	
	α Pegasi W.	61 36 57 2974		63 7 42 2980		64 38 20 2986		66 8 50 2993	
	Pollux E.	60 2 4 2893		58 29 36 2907		56 57 26 2923		55 25 36 2938	
	Regulus E.	96 27 28 2806		94 53 8 2818		93 19 3 2828		91 45 12 2839	
18	Sun W.	125 43 53 3263		127 8 48 3274		128 33 30 3285		129 57 59 3295	
	Fomalhaut W.	91 37 48 3339		93 1 14 3350		94 24 28 3361		95 47 29 3372	
	α Pegasi W.	73 39 12 3027		75 8 51 3034		76 38 22 3041		78 7 44 3048	
	α Arietis W.	30 1 31 3043		31 30 50 3037		33 0 17 3034		34 29 47 3032	
	Pollux E.	47 51 16 3017		46 21 24 3034		44 51 54 3051		43 22 45 3069	
	Regulus E.	83 59 19 2889		82 26 46 2898		80 54 25 2908		79 22 16 2916	
19	Sun W.	136 57 28 3345		138 20 48 3354		139 43 57 3364		141 6 54 3373	
	α Pegasi W.	85 32 26 3082		87 0 57 3089		88 29 20 3096		89 57 35 3102	
	α Arietis W.	41 57 43 3032		43 27 16 3034		44 56 46 3036		46 26 14 3038	
	Pollux E.	36 2 58 3177		34 36 21 3204		33 10 17 3233		31 44 47 3265	
	Regulus E.	71 44 13 2957		70 13 6 2965		68 42 9 2973		67 11 22 2979	
20	α Pegasi W.	97 16 48 3135		98 44 15 3142		100 11 34 3149		101 38 44 3156	
	α Arietis W.	53 52 46 3052		55 21 54 3056		56 50 58 3059		58 19 58 3061	
	Regulus E.	59 39 34 3012		58 9 36 3019		56 39 47 3026		55 10 6 3031	
	Saturn E.	109 46 7 3013		108 16 10 3018		106 46 19 3022		105 16 34 3026	
21	α Arietis W.	65 44 6 3076		67 12 45 3079		68 41 20 3081		70 9 53 3084	
	Aldebaran W.	32 25 14 3065		33 54 6 3066		35 22 57 3068		36 51 46 3068	
	Regulus E.	47 43 28 3060		46 14 30 3066		44 45 39 3072		43 16 55 3078	
	Saturn E.	97 49 9 3048		96 19 55 3051		94 50 45 3055		93 21 40 3058	
	Spica E.	101 25 31 3023		99 55 47 3027		98 26 8 3031		96 56 33 3035	
22	α Arietis W.	77 31 48 3096		79 0 3 3099		80 28 14 3100		81 56 24 3103	
	Aldebaran W.	44 15 33 3074		45 44 14 3076		47 12 53 3078		48 41 30 3078	
	Regulus E.	35 55 7 3110		34 27 10 3117		32 59 21 3125		31 31 42 3133	
	Saturn E.	85 57 13 3073		84 28 30 3075		82 59 50 3078		81 31 14 3081	
	Spica E.	89 29 41 3050		88 0 30 3052		86 31 22 3055		85 2 17 3057	
23	α Arietis W.	89 16 36 3111		90 44 32 3112		92 12 27 3114		93 40 20 3115	
	Aldebaran W.	56 4 16 3084		57 32 45 3084		59 1 14 3086		60 29 41 3086	
	Saturn E.	74 8 53 3090		72 40 31 3092		71 12 12 3094		69 43 55 3095	
	Spica E.	77 37 30 3066		76 8 39 3067		74 39 49 3069		73 11 1 3070	
	Jupiter E.	109 50 22 3117		108 22 33 3118		106 54 45 3119		105 26 58 3120	

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LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
24	Aldebaran W.	61° 58' 8"	3086	63° 26' 35"	3087	64° 55' 1"	3087	66° 23' 26"	3087
	Pollux W.	22° 0' 59"	3661	23° 18' 28"	3596	24° 37' 7"	3540	25° 56' 47"	3493
	Saturn E.	68° 15' 39"	3096	66° 47' 25"	3098	65° 19' 13"	3098	63° 51' 1"	3100
	Spica E.	71° 42' 15"	3071	70° 13' 30"	3071	68° 44' 45"	3072	67° 16' 2"	3072
	Jupiter E.	103° 59' 13"	3121	102° 31' 28"	3122	101° 3' 45"	3121	99° 36' 1"	3122
25	Aldebaran W.	73° 45' 37"	3085	75° 14' 5"	3084	76° 42' 34"	3083	78° 11' 5"	3082
	Pollux W.	32° 45' 58"	3341	34° 9' 22"	3321	35° 33' 10"	3302	36° 57' 20"	3286
	Saturn E.	56° 30' 20"	3103	55° 2' 14"	3104	53° 34' 9"	3103	52° 6' 3"	3104
	Spica E.	59° 52' 27"	3072	58° 23' 43"	3072	56° 54' 59"	3070	55° 26' 13"	3069
	Jupiter E.	92° 17' 28"	3121	90° 49' 44"	3120	89° 21' 59"	3119	87° 54' 13"	3118
26	Pollux W.	44° 2' 22"	3322	45° 28' 5"	3311	46° 54' 1"	3302	48° 20' 8"	3193
	Saturn E.	44° 45' 38"	3104	43° 17' 33"	3104	41° 49' 28"	3104	40° 21' 23"	3104
	Spica E.	48° 2' 1"	3061	46° 33' 4"	3060	45° 4' 5"	3057	43° 35' 2"	3053
	Jupiter E.	80° 34' 56"	3109	79° 6' 58"	3107	77° 38' 57"	3104	76° 10' 52"	3101
	Venus E.	110° 11' 48"	3514	108° 51' 39"	3512	107° 31' 28"	3509	106° 11' 14"	3506
27	Pollux W.	55° 33' 24"	3149	57° 0' 34"	3142	58° 27' 53"	3133	59° 55' 23"	3125
	Regulus W.	18° 35' 26"	3224	20° 1' 7"	3195	21° 27' 23"	3170	22° 54' 8"	3148
	Jupiter E.	68° 49' 28"	3082	67° 20' 56"	3078	65° 52' 20"	3073	64° 23' 37"	3068
	Antares E.	81° 42' 38"	3056	80° 13' 35"	3053	78° 44' 28"	3048	77° 15' 15"	3043
	Venus E.	99° 29' 4"	3487	98° 8' 25"	3482	96° 47' 40"	3476	95° 26' 49"	3471
	Mars E.	103° 41' 37"	3313	102° 17' 41"	3309	100° 53' 40"	3303	99° 29' 32"	3299
	Sun E.	140° 48' 18"	3458	139° 27' 7"	3452	138° 5' 49"	3446	136° 44' 24"	3438
28	Pollux W.	67° 15' 20"	3083	68° 43' 50"	3074	70° 12' 31"	3065	71° 41' 23"	3056
	Regulus W.	30° 13' 38"	3067	31° 42' 28"	3054	33° 11' 34"	3042	34° 40' 55"	3030
	Jupiter E.	56° 58' 22"	3037	55° 28' 55"	3030	53° 59' 20"	3023	52° 29' 36"	3016
	Antares E.	69° 47' 36"	3016	68° 17' 43"	3009	66° 47' 42"	3003	65° 17' 33"	2996
	Venus E.	88° 40' 58"	3439	87° 19' 25"	3431	85° 57' 44"	3423	84° 35' 54"	3415
	Mars E.	92° 27' 20"	3368	91° 2' 31"	3360	89° 37' 33"	3353	88° 12' 26"	3346
	Sun E.	129° 55' 12"	3400	128° 32' 55"	3392	127° 10' 29"	3382	125° 47' 52"	3374
29	Pollux W.	79° 8' 34"	3008	80° 38' 37"	2998	82° 8' 51"	2987	83° 39' 21"	2976
	Regulus W.	42° 11' 25"	2970	43° 42' 15"	2958	45° 13' 21"	2946	46° 44' 42"	2934
	Antares E.	57° 44' 31"	2958	56° 13' 25"	2949	54° 42' 8"	2940	53° 10' 40"	2931
	Venus E.	77° 44' 14"	3368	76° 21' 21"	3358	74° 58' 16"	3346	73° 34' 58"	3336
	Mars E.	81° 4' 26"	3200	79° 38' 17"	3190	78° 11' 56"	3179	76° 45' 22"	3169
	Sun E.	118° 52' 9"	3324	117° 28' 25"	3313	116° 4' 28"	3302	114° 40' 19"	3289
30	Pollux W.	91° 15' 15"	2919	92° 47' 10"	2906	94° 19' 21"	2894	95° 51' 48"	2881
	Regulus W.	54° 25' 24"	2870	55° 58' 22"	2856	57° 31' 38"	2842	59° 5' 12"	2828
	Antares E.	45° 30' 25"	2884	43° 57' 45"	2873	42° 24' 52"	2864	40° 51' 47"	2853
	Venus E.	66° 35' 5"	3273	65° 10' 22"	3259	63° 45' 23"	3245	62° 20' 7"	3231
	Mars E.	69° 29' 12"	3109	68° 1' 14"	3096	66° 33' 0"	3083	65° 4' 30"	3069
	Sun E.	107° 35' 57"	3226	106° 10' 19"	3213	104° 44' 25"	3198	103° 18' 13"	3184
31	Pollux W.	103° 38' 13"	2814	105° 12' 22"	2800	106° 46' 50"	2786	108° 21' 36"	2772
	Regulus W.	66° 57' 42"	2753	68° 33' 11"	2738	70° 9' 1"	2722	71° 45' 12"	2705
	Venus E.	55° 9' 24"	3153	53° 42' 19"	3137	52° 14' 54"	3120	50° 47' 9"	3103
	Mars E.	57° 37' 40"	2996	56° 7' 22"	2981	54° 36' 46"	2965	53° 5' 49"	2949
	Sun E.	96° 2' 47"	3105	94° 34' 44"	3090	93° 6' 22"	3073	91° 37' 39"	3055

MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^a .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^c .	P.L. of diff.
24	Aldebaran W.	67 51 52	3087	69 20 18	3087	70 48 44	3087	72 17 10	3086
	Pollux W.	27 17 19	3453	28 38 35	3419	30 0 30	3389	31 22 59	3363
	Saturn E.	62 22 51	3101	60 54 42	3101	59 26 34	3102	57 58 27	3102
	Spica E.	65 47 18	3073	64 18 36	3073	62 49 53	3073	61 21 10	3073
	Jupiter E.	98 8 19	3123	96 40 36	3123	95 12 54	3122	93 45 11	3122
25	Aldebaran W.	79 39 37	3081	81 8 10	3079	82 36 45	3077	84 5 23	3075
	Pollux W.	38 21 48	3271	39 46 34	3237	41 11 36	3245	42 36 52	3233
	Saturn E.	50 37 58	3104	49 9 53	3104	47 41 48	3104	46 13 43	3104
	Spica E.	53 57 26	3069	52 28 38	3067	50 59 48	3065	49 30 56	3063
	Jupiter E.	86 26 25	3117	84 38 36	3115	83 30 45	3114	82 2 52	3111
26	Pollux W.	49 46 26	3183	51 12 55	3175	52 39 34	3166	54 6 24	3157
	Saturn E.	38 53 18	3104	37 25 13	3105	35 57 9	3105	34 29 5	3105
	Spica E.	42 5 55	3051	40 36 45	3047	39 7 31	3043	37 38 12	3040
	Jupiter E.	74 42 43	3098	73 14 31	3095	71 46 15	3091	70 17 54	3087
	Venus E.	104 50 56	3502	103 30 34	3499	102 10 9	3495	100 49 39	3490
27	Pollux W.	61 23 2	3116	62 50 52	3109	64 18 51	3101	65 47 0	3092
	Regulus W.	24 21 20	3128	25 48 55	3111	27 16 51	3096	28 45 6	3082
	Jupiter E.	62 54 48	3063	61 25 53	3056	59 56 50	3051	58 27 40	3044
	Antares E.	75 45 56	3038	74 16 31	3033	72 46 59	3028	71 17 21	3022
	Venus E.	94 5 53	3465	92 44 50	3459	91 23 40	3453	90 2 23	3446
	Mars E.	98 5 20	3294	96 41 1	3288	95 16 35	3281	93 52 1	3275
	Sun E.	135 22 50	3430	134 1 8	3423	132 39 18	3416	131 17 20	3408
28	Pollux W.	73 10 26	3047	74 39 40	3038	76 9 6	3028	77 38 44	3018
	Regulus W.	36 10 31	3017	37 40 22	3005	39 10 28	2993	40 40 49	2981
	Jupiter E.	50 59 43	3007	49 29 39	2999	47 59 25	2990	46 29 0	2981
	Antares E.	63 47 15	2989	62 16 48	2981	60 46 12	2974	59 15 27	2966
	Venus E.	83 13 54	3407	81 51 45	3397	80 29 25	3388	79 6 55	3378
	Mars E.	86 47 11	3237	85 21 45	3228	83 56 9	3219	82 30 23	3210
	Sun E.	124 25 6	3364	123 2 8	3355	121 39 0	3345	120 15 40	3335
29	Pollux W.	85 10 4	2965	86 41 0	2954	88 12 10	2943	89 43 35	2931
	Regulus W.	48 16 18	2921	49 48 10	2909	51 20 18	2895	52 52 43	2883
	Antares E.	51 39 1	2922	50 7 10	2912	48 55 7	2903	47 2 52	2894
	Venus E.	72 11 28	3324	70 47 44	3311	69 23 45	3299	67 59 33	3286
	Mars E.	75 18 36	3158	73 51 36	3147	72 24 23	3134	70 56 55	3122
	Sun E.	113 15 55	3278	111 51 18	3265	110 26 26	3253	109 1 19	3240
30	Pollux W.	97 24 31	2868	98 57 31	2855	100 30 47	2842	102 4 21	2828
	Regulus W.	60 39 3	2813	62 13 14	2799	63 47 43	2783	65 22 33	2769
	Antares E.	39 18 28	2844	37 44 57	2835	36 11 14	2825	34 37 18	2815
	Venus E.	60 54 35	3216	59 28 45	3201	58 2 37	3185	56 36 10	3169
	Mars E.	63 35 43	3056	62 6 39	3042	60 37 18	3026	59 7 38	3012
	Sun E.	101 51 45	3169	100 24 58	3153	98 57 53	3138	97 30 30	3122
31	Pollux W.	109 56 40	2758	111 32 3	2744	113 7 44	2729	114 43 45	2715
	Regulus W.	73 21 45	2689	74 58 40	2673	76 35 57	2656	78 13 36	2638
	Venus E.	49 19 3	3086	47 50 36	3068	46 21 47	3050	44 52 36	3031
	Mars E.	51 34 33	2933	50 2 56	2916	48 30 58	2899	46 58 38	2883
	Sun E.	90 8 34	3038	88 39 8	3021	87 9 21	3002	85 39 11	2987

Day of the Month.	AIRY'S Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1°33141	1°65394	0°17536	1°48740	55°872
2	1°32474	1°65324	0°17634	1°48740	56°263
3	1°31799	1°65249	0°17731	1°48739	56°662
4	1°31116	1°65172	0°17828	1°48737	57°070
5	1°30426	1°65082	0°17924	1°48734	57°487
6	1°29728	1°64986	0°18020	1°48730	57°911
7	1°29020	1°64884	0°18115	1°48725	58°344
8	1°28305	1°64777	0°18209	1°48719	58°780
9	1°27583	1°64664	0°18302	1°48712	59°222
10	1°26853	1°64543	0°18395	1°48705	59°672
11	1°26116	1°64417	0°18487	1°48697	60°126
12	1°25372	1°64285	0°18578	1°48688	60°585
13	1°24620	1°64147	0°18668	1°48678	61°050
14	1°23861	1°64002	0°18757	1°48668	61°523
15	1°23095	1°63851	0°18846	1°48657	62°000
16	1°22321	1°63693	0°18934	1°48645	62°482
17	1°21541	1°63529	0°19021	1°48633	62°968
18	1°20754	1°63359	0°19107	1°48620	63°458
19	1°19960	1°63183	0°19191	1°48607	63°953
20	1°19160	1°63000	0°19275	1°48593	64°452
21	1°18354	1°62810	0°19358	1°48579	64°955
22	1°17541	1°62614	0°19440	1°48564	65°464
23	1°16722	1°62411	0°19521	1°48549	65°976
24	1°15898	1°62202	0°19601	1°48533	66°491
25	1°15068	1°61987	0°19680	1°48517	67°009
26	1°14232	1°61765	0°19759	1°48501	67°530
27	1°13392	1°61537	0°19837	1°48484	68°053
28	1°12547	1°61303	0°19913	1°48467	68°579
29	1°11697	1°61061	0°19988	1°48450	69°108
30	1°10844	1°60813	0°20062	1°48433	69°640
31	1°09987	1°60558	0°20135	1°48415	70°174
32	1°09126	1°60297	0°20207	1°48397	70°709

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .48761.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Days.		
1	-0 ^o .5503	+1 ^o .3027	+9 ^o .4735	+0 ^o .7574	^h ^m ^s 5 17 30 ^o .94	284	0	0000
2	0 ^o .5886	1 ^o .3011	9 ^o .4784	0 ^o .7573	5 13 35 ^o .03	285	1	0027
3	0 ^o .6236	1 ^o .2994	9 ^o .4832	0 ^o .7573	5 9 39 ^o .11	286	2	0055
4	-0 ^o .6559	+1 ^o .2976	+9 ^o .4880	+0 ^o .7571	5 5 43 ^o .20	287	3	0082
5	0 ^o .6859	1 ^o .2956	9 ^o .4927	0 ^o .7569	5 1 47 ^o .29	288	4	0110
6	0 ^o .7137	1 ^o .2934	9 ^o .4973	0 ^o .7567	4 57 51 ^o .38	289	5	0137
7	-0 ^o .7398	+1 ^o .2911	+9 ^o .5019	+0 ^o .7565	4 53 55 ^o .47	290	6	0164
8	0 ^o .7643	1 ^o .2887	9 ^o .5063	0 ^o .7561	4 49 59 ^o .56	291	7	0192
9	0 ^o .7873	1 ^o .2861	9 ^o .5107	0 ^o .7558	4 46 3 ^o .65	292	8	0219
10	-0 ^o .8090	+1 ^o .2833	+9 ^o .5151	+0 ^o .7554	4 42 7 ^o .74	293	9	0246
11	0 ^o .8296	1 ^o .2804	9 ^o .5194	0 ^o .7549	4 38 11 ^o .83	294	10	0274
12	0 ^o .8491	1 ^o .2774	9 ^o .5236	0 ^o .7545	4 34 15 ^o .91	295	11	0301
13	-0 ^o .8676	+1 ^o .2742	+9 ^o .5277	+0 ^o .7540	4 30 20 ^o .00	296	12	0329
14	0 ^o .8852	1 ^o .2708	9 ^o .5317	0 ^o .7534	4 26 24 ^o .09	297	13	0356
15	0 ^o .9020	1 ^o .2672	9 ^o .5357	0 ^o .7528	4 22 28 ^o .18	298	14	0383
16	-0 ^o .9181	+1 ^o .2635	+9 ^o .5397	+0 ^o .7522	4 18 32 ^o .27	299	15	0411
17	0 ^o .9334	1 ^o .2596	9 ^o .5435	0 ^o .7515	4 14 36 ^o .36	300	16	0438
18	0 ^o .9481	1 ^o .2556	9 ^o .5473	0 ^o .7508	4 10 40 ^o .45	301	17	0465
19	-0 ^o .9622	+1 ^o .2513	+9 ^o .5510	+0 ^o .7501	4 6 44 ^o .54	302	18	0493
20	0 ^o .9756	1 ^o .2469	9 ^o .5547	0 ^o .7493	4 2 48 ^o .63	303	19	0520
21	0 ^o .9886	1 ^o .2423	9 ^o .5583	0 ^o .7485	3 58 52 ^o .72	304	20	0548
22	-1 ^o .0010	+1 ^o .2376	+9 ^o .5618	+0 ^o .7477	3 54 56 ^o .81	305	21	0575
23	1 ^o .0130	1 ^o .2326	9 ^o .5653	0 ^o .7469	3 51 0 ^o .90	306	22	0602
24	1 ^o .0245	1 ^o .2274	9 ^o .5687	0 ^o .7460	3 47 4 ^o .99	307	23	0630
25	-1 ^o .0355	+1 ^o .2221	+9 ^o .5720	+0 ^o .7452	3 43 9 ^o .08	308	24	0657
26	1 ^o .0462	1 ^o .2165	9 ^o .5753	0 ^o .7443	3 39 13 ^o .17	309	25	0684
27	1 ^o .0564	1 ^o .2107	9 ^o .5785	0 ^o .7434	3 35 17 ^o .26	310	26	0712
28	-1 ^o .0663	+1 ^o .2047	+9 ^o .5817	+0 ^o .7424	3 31 21 ^o .35	311	27	0739
29	1 ^o .0759	1 ^o .1985	9 ^o .5848	0 ^o .7415	3 27 25 ^o .44	312	28	0767
30	1 ^o .0851	1 ^o .1921	9 ^o .5879	0 ^o .7405	3 23 29 ^o .53	313	29	0794
31	1 ^o .0939	1 ^o .1854	9 ^o .5909	0 ^o .7395	3 19 33 ^o .62	314	30	0821
32	-1 ^o .1025	+1 ^o .1785	+9 ^o .5938	+0 ^o .7386	3 15 37 ^o .71	315	31	0849

* Add .0011 if Fraction be required for the time *t*, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		h m s	s	° ' "	"	m s	m s	s
Mon.	1	20 57 41.71	10.202	S. 17 13 0.8	42.41	I 8.31	13 49.29	0.345
Tues.	2	21 1 46.15	10.169	16 55 53.8	43.16	I 8.19	13 57.15	0.311
Wed.	3	21 5 49.80	10.135	16 38 29.1	43.89	I 8.07	14 4.23	0.278
Thur.	4	21 9 52.65	10.102	16 20 46.9	44.61	I 7.96	14 10.50	0.245
Frid.	5	21 13 54.67	10.068	16 2 47.7	45.31	I 7.84	14 15.96	0.211
Sat.	6	21 17 55.91	10.035	15 44 32.0	45.99	I 7.73	14 20.62	0.178
Sun.	7	21 21 56.33	10.001	15 26 0.1	46.65	I 7.61	14 24.48	0.145
Mon.	8	21 25 55.95	9.967	15 7 12.6	47.29	I 7.50	14 27.54	0.111
Tues.	9	21 29 54.75	9.934	14 48 9.9	47.92	I 7.38	14 29.78	0.077
Wed.	10	21 33 52.76	9.900	14 28 52.4	48.53	I 7.27	14 31.22	0.044
Thur.	11	21 37 49.96	9.867	14 9 20.4	49.12	I 7.16	14 31.87	0.011
Frid.	12	21 41 46.37	9.834	13 49 34.6	49.69	I 7.05	14 31.73	0.022
Sat.	13	21 45 42.00	9.802	13 29 35.2	50.25	I 6.95	14 30.81	0.055
Sun.	14	21 49 36.86	9.770	13 9 22.7	50.79	I 6.84	14 29.12	0.086
Mon.	15	21 53 30.95	9.738	12 48 57.5	51.31	I 6.73	14 26.67	0.118
Tues.	16	21 57 24.29	9.707	12 28 20.0	51.81	I 6.63	14 23.46	0.149
Wed.	17	22 1 16.90	9.677	12 7 30.7	52.30	I 6.53	14 19.53	0.179
Thur.	18	22 5 8.78	9.647	11 46 29.8	52.77	I 6.43	14 14.86	0.209
Frid.	19	22 8 59.95	9.618	11 25 18.0	53.22	I 6.33	14 9.49	0.238
Sat.	20	22 12 50.43	9.589	11 3 55.4	53.65	I 6.23	14 3.44	0.267
Sun.	21	22 16 40.23	9.561	10 42 22.7	54.07	I 6.14	13 56.70	0.295
Mon.	22	22 20 29.37	9.534	10 20 40.0	54.47	I 6.04	13 49.31	0.321
Tues.	23	22 24 17.87	9.508	9 58 47.8	54.86	I 5.95	13 41.28	0.347
Wed.	24	22 28 5.75	9.483	9 36 46.6	55.23	I 5.86	13 32.63	0.373
Thur.	25	22 31 53.03	9.458	9 14 36.6	55.59	I 5.78	13 23.38	0.398
Frid.	26	22 35 39.73	9.434	8 52 18.3	55.93	I 5.69	13 13.56	0.421
Sat.	27	22 39 25.88	9.411	8 29 52.1	56.25	I 5.61	13 3.18	0.444
Sun.	28	22 43 11.48	9.389	8 7 18.2	56.56	I 5.53	12 52.26	0.466
Mon.	29	22 46 56.56	9.368	7 44 37.2	56.85	I 5.45	12 40.82	0.487
Tues.	30	22 50 41.15		S. 7 21 49.4		I 5.38	12 28.88	

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subtracted from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		h m s	° ' "	' "	m s	h m s
Mon.	1	20 57 39.36	S. 17 13 10.5	16 15.9	13 49.21	20 43 50.15
Tues.	2	21 1 43.79	16 56 3.9	16 15.7	13 57.08	20 47 46.71
Wed.	3	21 5 47.42	16 38 39.4	16 15.6	14 4.16	20 51 43.26
Thur.	4	21 9 50.26	16 20 57.4	16 15.4	14 10.44	20 55 39.82
Frid.	5	21 13 52.28	16 2 58.5	16 15.2	14 15.91	20 59 36.37
Sat.	6	21 17 53.51	15 44 43.0	16 15.0	14 20.58	21 3 32.93
Sun.	7	21 21 53.93	15 26 11.3	16 14.9	14 24.45	21 7 29.48
Mon.	8	21 25 53.55	15 7 24.0	16 14.7	14 27.52	21 11 26.03
Tues.	9	21 29 52.35	14 48 21.5	16 14.5	14 29.76	21 15 22.59
Wed.	10	21 33 50.36	14 29 4.1	16 14.3	14 31.21	21 19 19.15
Thur.	11	21 37 47.57	14 9 32.3	16 14.2	14 31.87	21 23 15.70
Frid.	12	21 41 43.99	13 49 46.6	16 14.0	14 31.74	21 27 12.25
Sat.	13	21 45 39.63	13 29 47.4	16 13.8	14 30.82	21 31 8.81
Sun.	14	21 49 34.50	13 9 35.0	16 13.6	14 29.14	21 35 5.36
Mon.	15	21 53 28.61	12 49 9.9	16 13.4	14 26.70	21 39 1.91
Tues.	16	21 57 21.96	12 28 32.4	16 13.2	14 23.49	21 42 58.47
Wed.	17	22 1 14.59	12 7 43.2	16 13.0	14 19.57	21 46 55.02
Thur.	18	22 5 6.49	11 46 42.4	16 12.8	14 14.91	21 50 51.58
Frid.	19	22 8 57.68	11 25 30.6	16 12.6	14 9.55	21 54 48.13
Sat.	20	22 12 48.18	11 4 8.0	16 12.4	14 3.50	21 58 44.68
Sun.	21	22 16 38.01	10 42 35.2	16 12.1	13 56.77	22 2 41.24
Mon.	22	22 20 27.17	10 20 52.5	16 11.9	13 49.38	22 6 37.79
Tues.	23	22 24 15.70	9 59 0.4	16 11.7	13 41.36	22 10 34.34
Wed.	24	22 28 3.61	9 36 59.0	16 11.5	13 32.71	22 14 30.90
Thur.	25	22 31 50.92	9 14 49.0	16 11.2	13 23.47	22 18 27.45
Frid.	26	22 35 37.65	8 52 30.7	16 11.0	13 13.65	22 22 24.00
Sat.	27	22 39 23.83	8 30 4.3	16 10.8	13 3.28	22 26 20.55
Sun.	28	22 43 9.46	8 7 30.4	16 10.5	12 52.35	22 30 17.11
Mon.	29	22 46 54.58	7 44 49.3	16 10.3	12 40.92	22 34 13.66
Tues.	30	22 50 39.20	S. 7 22 1.3	16 10.0	12 28.99	22 38 10.21

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	311 56 56.5	N.0°12	9.9937043	15 36.7	15 44.2	57 12.0	57 39.2
2	312 57 48.6	0.24	9.9937743	15 51.9	15 59.7	58 7.4	58 36.0
3	313 58 39.8	0.37	9.9938460	16 7.5	16 15.1	59 4.6	59 32.4
4	314 59 30.2	0.49	9.9939192	16 22.2	16 28.9	59 58.7	60 23.0
5	316 0 19.7	0.58	9.9939938	16 34.7	16 39.5	60 44.4	61 2.1
6	317 1 8.1	0.65	9.9940696	16 43.3	16 45.7	61 15.7	61 24.5
7	318 1 55.2	0.69	9.9941465	16 46.7	16 46.3	61 28.3	61 26.9
8	319 2 41.0	0.69	9.9942245	16 44.5	16 41.3	61 20.2	61 8.6
9	320 3 25.4	0.65	9.9943035	16 36.9	16 31.4	60 52.5	60 32.4
10	321 4 8.2	0.58	9.9943836	16 25.0	16 18.0	60 9.0	59 43.1
11	322 4 49.4	0.49	9.9944648	16 10.4	16 2.5	59 15.3	58 46.5
12	323 5 29.0	0.36	9.9945472	15 54.5	15 46.6	58 17.2	57 48.2
13	324 6 7.0	0.23	9.9946310	15 38.9	15 31.5	57 19.9	56 52.8
14	325 6 43.2	N.0°09	9.9947163	15 24.5	15 18.0	56 27.1	56 3.3
15	326 7 17.6	S.0°04	9.9948033	15 12.0	15 6.6	55 41.4	55 21.6
16	327 7 50.3	0.15	9.9948918	15 1.8	14 57.6	55 4.0	54 48.6
17	328 8 21.2	0.26	9.9949821	14 54.0	14 51.0	54 35.4	54 24.2
18	329 8 50.3	0.36	9.9950741	14 48.5	14 46.5	54 15.1	54 8.0
19	330 9 17.7	0.44	9.9951681	14 45.1	14 44.1	54 2.7	53 59.1
20	331 9 43.2	0.48	9.9952640	14 43.6	14 43.5	53 57.2	53 56.8
21	332 10 6.9	0.51	9.9953616	14 43.8	14 44.4	53 57.9	54 0.3
22	333 10 28.9	0.51	9.9954611	14 45.4	14 46.7	54 3.9	54 8.8
23	334 10 49.2	0.50	9.9955625	14 48.4	14 50.4	54 14.9	54 22.2
24	335 11 7.8	0.45	9.9956657	14 52.7	14 55.3	54 30.7	54 40.3
25	336 11 24.8	0.39	9.9957708	14 58.3	15 1.7	54 51.2	55 3.4
26	337 11 40.1	0.31	9.9958776	15 5.3	15 9.4	55 16.8	55 31.6
27	338 11 53.9	0.21	9.9959860	15 13.7	15 18.5	55 47.7	56 5.2
28	339 12 6.2	S.0°10	9.9960959	15 23.7	15 29.2	56 24.1	56 44.3
29	340 12 17.0	N.0°02	9.9962072	15 35.1	15 41.2	57 5.8	57 28.3
30	341 12 26.3	N.0°14	9.9963197	15 47.6	15 54.1	57 51.7	58 15.7

MEAN TIME.

		THE MOON'S							
Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
Mon.	1	227° 48' 19" 0	234° 24' 48" 6	S. 0° 34' 3" 1	N. 0° 0' 53" 6	23.2	18° 57' 6"		
Tues.	2	241° 7' 52" 6	247° 57' 53" 5	N. 0° 36' 23" 3	1° 11' 57" 0	24.2	19° 54' 1"		
Wed.	3	254° 55' 6" 9	261° 59' 38" 9	1° 47' 2" 4	2° 21' 4" 1	25.2	20° 53' 4"		
Thur.	4	269° 11' 24" 9	276° 30' 6" 7	2° 53' 24" 2	3° 23' 23" 2	26.2	21° 54' 1"		
Frid.	5	283° 55' 12" 4	291° 25' 55" 6	3° 50' 21" 0	4° 13' 39" 0	27.2	22° 54' 6"		
Sat.	6	299° 1' 15" 0	306° 39' 57" 2	4° 32' 42" 2	4° 47' 0" 4	28.2	23° 53' 7"		
Sun.	7	314° 20' 38" 6	322° 1' 49" 5	4° 56' 11" 1	5° 0' 0" 5	29.2	6		
Mon.	8	329° 41' 58" 1	337° 19' 35" 3	4° 58' 24" 6	4° 51' 28" 8	0.7	0° 50' 7"		
Tues.	9	344° 53' 18" 6	352° 21' 56" 1	4° 39' 28" 4	4° 22' 46" 1	1.7	1° 45' 6"		
Wed.	10	359° 44' 29" 3	7° 0' 13" 5	4° 1' 51" 2	3° 37' 17" 1	2.7	2° 38' 9"		
Thur.	11	14° 8' 39" 9	21° 9' 33" 3	3° 9' 39" 6	2° 39' 35" 8	3.7	3° 31' 2"		
Frid.	12	28° 2' 51" 8	34° 48' 44" 8	2° 7' 41" 1	1° 34' 30" 1	4.7	4° 23' 0"		
Sat.	13	41° 27' 30" 7	47° 59' 35" 8	N. 1° 0' 34" 5	N. 0° 26' 23" 7	5.7	5° 14' 5"		
Sun.	14	54° 25' 30" 7	60° 45' 50" 1	S. 0° 7' 36" 0	S. 0° 41' 0" 5	6.7	6° 5" 8"		
Mon.	15	67° 1' 10" 7	73° 12' 9" 9	1° 13' 28" 6	1° 44' 41" 1	7.7	6° 56" 8"		
Tues.	16	79° 19' 24" 7	85° 23' 31" 0	2° 14' 20" 7	2° 42' 11" 9	8.7	7° 47" 0"		
Wed.	17	91° 25' 3" 0	97° 24' 32" 7	3° 8' 0" 4	3° 31' 33" 5	9.7	8° 35" 9"		
Thur.	18	103° 22' 29" 4	109° 19' 19" 6	3° 52' 39" 5	4° 11' 7" 7	10.7	9° 23" 4"		
Frid.	19	115° 15' 26" 8	121° 11' 11" 7	4° 26' 48" 7	4° 39' 34" 2	11.7	10° 9" 3"		
Sat.	20	127° 6' 52" 0	133° 2' 43" 0	4° 49' 16" 9	4° 55' 51" 3	12.7	10° 53" 7"		
Sun.	21	138° 58' 57" 9	144° 55' 48" 0	4° 59' 12" 7	4° 59' 18" 4	13.7	11° 36" 8"		
Mon.	22	150° 53' 22" 6	156° 51' 50" 6	4° 56' 7" 3	4° 49' 39" 7	14.7	12° 19" 2"		
Tues.	23	162° 51' 20" 6	168° 52' 1" 0	4° 39' 58" 2	4° 27' 6" 9	15.7	13° 1" 3"		
Wed.	24	174° 54' 0" 8	180° 57' 30" 1	4° 11' 11" 8	3° 52' 20" 9	16.7	13° 43" 9"		
Thur.	25	187° 2' 40" 7	193° 9' 46" 4	3° 30' 43" 9	3° 6' 32" 3	17.7	14° 27" 5"		
Frid.	26	199° 19' 3" 1	205° 30' 48" 8	2° 39' 59" 3	2° 11' 19" 9	18.7	15° 13" 0"		
Sat.	27	211° 45' 24" 3	218° 3' 12" 6	1° 40' 50" 5	1° 8' 49" 5	19.7	16° 0" 8"		
Sun.	28	224° 24' 38" 3	230° 50' 7" 4	S. 0° 35' 36" 8	S. 0° 1' 34" 3	20.7	16° 51" 4"		
Mon.	29	237° 20' 6" 8	243° 55' 2" 9	N. 0° 32' 54" 5	N. 1° 7' 23" 9	21.7	17° 45" 0"		
Tues.	30	250° 35' 20" 6	257° 21' 22" 5	N. 1° 41' 26" 6	N. 2° 14' 33" 2	22.7	18° 41" 0"		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
MONDAY 1.				WEDNESDAY 3.			
0	15 0 41.37	S. 17 41 44.8	63.93	0	16 55 22.61	S. 20 49 44.3	9.46
1	15 2 57.03	17 48 8.4	63.03	1	16 57 53.21	20 50 41.1	8.10
2	15 5 13.02	17 54 26.6	62.13	2	17 0 24.04	20 51 29.7	6.74
3	15 7 29.35	18 0 39.3	61.22	3	17 2 35.11	20 52 10.1	5.36
4	15 9 46.03	18 6 46.6	60.29	4	17 5 26.41	20 52 42.3	3.98
5	15 12 3.05	18 12 48.4	59.36	5	17 7 57.94	20 53 6.2	2.60
6	15 14 20.40	18 18 44.5	58.41	6	17 10 29.68	20 53 21.8	1.21
7	15 16 38.10	18 24 35.0	57.45	7	17 13 1.64	20 53 29.0	0.18
8	15 18 56.14	18 30 19.7	56.49	8	17 15 33.81	20 53 27.9	1.59
9	15 21 14.51	18 35 58.6	55.51	9	17 18 6.18	20 53 18.4	3.00
10	15 23 33.23	18 41 31.7	54.52	10	17 20 38.76	20 53 0.4	4.41
11	15 25 52.29	18 46 58.8	53.52	11	17 23 11.53	20 52 33.9	5.83
12	15 28 11.68	18 52 19.9	52.51	12	17 25 44.49	20 51 58.9	7.25
13	15 30 31.42	18 57 35.0	51.49	13	17 28 17.64	20 51 15.4	8.68
14	15 32 51.49	19 2 43.9	50.46	14	17 30 50.96	20 50 23.3	10.11
15	15 35 11.90	19 7 46.7	49.44	15	17 33 24.45	20 49 22.6	11.55
16	15 37 32.65	19 12 43.2	48.36	16	17 35 58.11	20 48 13.4	12.99
17	15 39 53.73	19 17 33.4	47.30	17	17 38 31.93	20 46 55.4	14.43
18	15 42 15.14	19 22 17.2	46.23	18	17 41 5.91	20 45 28.8	15.88
19	15 44 36.89	19 26 54.5	45.14	19	17 43 40.04	20 43 53.6	17.33
20	15 46 58.96	19 31 25.4	44.05	20	17 46 14.31	20 42 9.6	18.78
21	15 49 21.37	19 35 49.7	42.95	21	17 48 48.71	20 40 16.9	20.23
22	15 51 44.11	19 40 7.4	41.83	22	17 51 23.25	20 38 15.5	21.69
23	15 54 7.17	S. 19 44 18.3	40.70	23	17 53 57.91	S. 20 36 5.3	23.15
TUESDAY 2.				THURSDAY 4.			
0	15 56 30.55	S. 19 48 22.5	39.56	0	17 56 32.70	S. 20 33 46.4	24.61
1	15 58 54.26	19 52 19.9	38.42	1	17 59 7.60	20 31 18.7	26.07
2	16 1 18.29	19 56 10.4	37.26	2	18 1 42.60	20 28 42.3	27.54
3	16 3 42.64	19 59 54.0	36.09	3	18 4 17.71	20 25 57.1	29.00
4	16 6 7.31	20 3 30.5	34.92	4	18 6 52.91	20 23 3.1	30.46
5	16 8 32.29	20 7 0.0	33.73	5	18 9 28.20	20 20 0.3	31.93
6	16 10 57.58	20 10 22.4	32.53	6	18 12 3.57	20 16 48.7	33.39
7	16 13 23.18	20 13 37.6	31.33	7	18 14 39.02	20 13 28.4	34.85
8	16 15 49.09	20 16 45.6	30.11	8	18 17 14.54	20 9 59.3	36.31
9	16 18 15.30	20 19 46.2	28.89	9	18 19 50.12	20 6 21.4	37.77
10	16 20 41.81	20 22 39.6	27.65	10	18 22 25.76	20 2 34.8	39.23
11	16 23 8.61	20 25 25.5	26.41	11	18 25 1.46	19 58 39.4	40.69
12	16 25 35.71	20 28 3.9	25.16	12	18 27 37.19	19 54 35.2	42.15
13	16 28 3.10	20 30 34.8	23.90	13	18 30 12.97	19 50 22.3	43.60
14	16 30 30.79	20 32 58.2	22.63	14	18 32 48.79	19 46 0.7	45.05
15	16 32 58.75	20 35 14.0	21.35	15	18 35 24.63	19 41 30.4	46.50
16	16 35 27.00	20 37 22.1	20.06	16	18 38 0.49	19 36 51.4	47.94
17	16 37 55.52	20 39 22.4	18.76	17	18 40 36.37	19 32 3.8	49.38
18	16 40 24.32	20 41 15.0	17.46	18	18 43 12.26	19 27 7.5	50.82
19	16 42 53.39	20 42 59.7	16.15	19	18 45 48.15	19 22 2.6	52.25
20	16 45 22.72	20 44 36.6	14.82	20	18 48 24.04	19 16 49.2	53.67
21	16 47 52.31	20 46 5.5	13.49	21	18 50 59.92	19 11 27.1	55.09
22	16 50 22.16	20 47 26.5	12.16	22	18 53 35.79	19 5 56.6	56.51
23	16 52 52.26	20 48 39.4	10.81	23	18 56 11.64	19 0 17.5	57.92
24	16 55 22.61	S. 20 49 44.3		24	18 58 47.46	S. 18 54 29.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
FRIDAY 5.				SUNDAY 7.			
0	18 58 47.46	8. 18 54 29.9	59.33	0	21 1 24.37	8. 11 48 34.7	114.45
1	19 1 23.25	18 48 33.9	60.73	1	21 3 53.66	11 37 8.0	115.25
2	19 3 59.01	18 42 29.6	62.12	2	21 6 22.75	11 25 36.5	116.03
3	19 6 34.72	18 36 16.8	63.51	3	21 8 51.64	11 14 0.3	116.79
4	19 9 10.39	18 29 55.8	64.89	4	21 11 20.33	11 2 19.6	117.54
5	19 11 46.00	18 23 26.4	66.26	5	21 13 48.82	10 50 34.4	118.27
6	19 14 21.55	18 16 48.9	67.62	6	21 16 17.11	10 38 44.7	118.98
7	19 16 57.04	18 10 3.2	68.98	7	21 18 45.20	10 26 50.8	119.68
8	19 19 32.46	18 3 9.3	70.33	8	21 21 13.08	10 14 52.8	120.36
9	19 22 7.81	17 56 7.3	71.67	9	21 23 40.77	10 2 50.7	121.02
10	19 24 43.08	17 48 57.3	73.00	10	21 26 8.25	9 50 44.6	121.66
11	19 27 18.26	17 41 39.3	74.32	11	21 28 35.53	9 38 34.6	122.28
12	19 29 53.35	17 34 13.4	75.63	12	21 31 2.60	9 26 20.9	122.89
13	19 32 28.35	17 26 39.6	76.93	13	21 33 29.48	9 14 3.6	123.48
14	19 35 3.25	17 18 58.0	78.22	14	21 35 56.15	9 1 42.7	124.05
15	19 37 38.05	17 11 8.7	79.51	15	21 38 22.62	8 49 18.4	124.61
16	19 40 12.74	17 3 11.6	80.78	16	21 40 48.90	8 36 50.7	125.14
17	19 42 47.32	16 55 7.0	82.04	17	21 43 14.97	8 24 19.9	125.66
18	19 45 21.78	16 46 54.7	83.29	18	21 45 40.84	8 11 45.9	126.16
19	19 47 56.12	16 38 35.0	84.52	19	21 48 6.51	7 59 9.0	126.64
20	19 50 30.33	16 30 7.9	85.75	20	21 50 31.98	7 46 29.1	127.11
21	19 53 4.42	16 21 33.4	86.97	21	21 52 57.23	7 33 46.4	127.56
22	19 55 38.38	16 12 51.6	88.17	22	21 55 22.33	7 21 1.1	127.99
23	19 58 12.19	8. 16 4 2.6	89.36	23	21 57 47.21	8. 7 8 13.2	128.40
SATURDAY 6.				MONDAY 8.			
0	20 0 45.87	8. 15 55 6.5	90.53	0	22 0 11.89	8. 6 55 22.8	128.79
1	20 3 19.40	15 46 3.3	91.70	1	22 2 36.38	6 42 30.1	129.16
2	20 5 52.79	15 36 53.1	92.85	2	22 5 0.68	6 29 35.1	129.52
3	20 8 26.03	15 27 36.1	93.98	3	22 7 24.78	6 16 38.0	129.86
4	20 10 59.11	15 18 12.2	95.11	4	22 9 48.70	6 3 38.8	130.18
5	20 13 32.03	15 8 41.5	96.22	5	22 12 12.42	5 50 37.7	130.49
6	20 16 4.80	14 59 4.2	97.31	6	22 14 35.95	5 37 34.8	130.78
7	20 18 37.40	14 49 20.3	98.39	7	22 16 59.30	5 24 30.1	131.05
8	20 21 9.84	14 39 30.0	99.46	8	22 19 22.46	5 11 23.9	131.30
9	20 23 42.11	14 29 33.2	100.52	9	22 21 45.44	4 58 16.1	131.54
10	20 26 14.20	14 19 30.1	101.56	10	22 24 8.24	4 45 6.8	131.75
11	20 28 46.13	14 9 20.7	102.58	11	22 26 30.85	4 31 56.3	131.95
12	20 31 17.87	13 59 5.3	103.58	12	22 28 53.28	4 18 44.6	132.13
13	20 33 49.44	13 48 43.8	104.58	13	22 31 15.54	4 5 31.8	132.30
14	20 36 20.83	13 38 16.3	105.56	14	22 33 37.62	3 52 18.0	132.45
15	20 38 52.03	13 27 43.0	106.52	15	22 35 59.52	3 39 3.3	132.58
16	20 41 23.06	13 17 3.9	107.46	16	22 38 21.25	3 25 47.8	132.69
17	20 43 53.89	13 6 19.1	108.39	17	22 40 42.81	3 12 31.7	132.79
18	20 46 24.54	12 55 28.7	109.31	18	22 43 4.21	2 59 14.9	132.87
19	20 48 54.99	12 44 32.9	110.21	19	22 45 25.43	2 45 57.7	132.94
20	20 51 25.26	12 33 31.6	111.09	20	22 47 46.49	2 32 40.1	132.99
21	20 53 55.33	12 22 25.1	111.95	21	22 50 7.38	2 19 22.2	133.02
22	20 56 25.21	12 11 13.4	112.80	22	22 52 28.12	2 6 4.1	133.03
23	20 58 54.89	11 59 56.5	113.64	23	22 54 48.69	1 52 45.9	133.03
24	21 1 24.37	8. 11 48 34.7		24	22 57 9.11	8. 1 39 27.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 9.				THURSDAY 11.			
0	h m s	S. ° ' "	"	0	h m s	N. ° ' "	"
0	22 57 9.11	S. 1 39 27.7	133.01	0	0 47 6.78	N. 8 29 38.0	115.37
1	22 59 29.37	1 26 9.7	132.97	1	0 49 22.14	8 41 10.2	114.70
2	23 1 49.48	1 12 51.8	132.92	2	0 51 37.45	8 52 38.4	114.03
3	23 4 9.43	0 59 34.3	132.85	3	0 53 52.71	9 4 2.6	113.35
4	23 6 29.24	0 46 17.2	132.77	4	0 56 7.92	9 15 22.7	112.66
5	23 8 48.90	0 33 0.6	132.67	5	0 58 23.08	9 26 38.7	111.96
6	23 11 8.42	0 19 44.5	132.56	6	1 0 38.20	9 37 50.5	111.25
7	23 13 27.80	S. 0 6 29.2	132.43	7	1 2 53.27	9 48 58.0	110.53
8	23 15 47.03	N. 0 6 45.4	132.29	8	1 5 8.30	10 0 1.2	109.80
9	23 18 6.13	0 19 59.1	132.13	9	1 7 23.29	10 11 0.0	109.07
10	23 20 25.09	0 33 11.9	131.95	10	1 9 38.24	10 21 54.4	108.32
11	23 22 43.91	0 46 23.6	131.76	11	1 11 53.15	10 32 44.3	107.56
12	23 25 2.61	0 59 34.1	131.55	12	1 14 8.03	10 43 29.7	106.80
13	23 27 21.18	1 12 43.4	131.33	13	1 16 22.87	10 54 10.5	106.03
14	23 29 39.62	1 25 51.4	131.10	14	1 18 37.68	11 4 46.7	105.25
15	23 31 57.93	1 38 58.1	130.85	15	1 20 52.45	11 15 18.2	104.47
16	23 34 16.13	1 52 3.2	130.59	16	1 23 7.19	11 25 45.1	103.67
17	23 36 34.20	2 5 6.7	130.31	17	1 25 21.90	11 36 7.1	102.87
18	23 38 52.15	2 18 8.5	130.02	18	1 27 36.58	11 46 24.3	102.06
19	23 41 9.99	2 31 8.7	129.71	19	1 29 51.23	11 56 36.7	101.24
20	23 43 27.72	2 44 7.0	129.39	20	1 32 5.86	12 6 44.1	100.42
21	23 45 45.33	2 57 3.3	129.06	21	1 34 20.46	12 16 46.6	99.59
22	23 48 2.84	3 9 57.7	128.71	22	1 36 35.03	12 26 44.1	98.75
23	23 50 20.23	N. 3 22 50.0	128.35	23	1 38 49.58	N. 12 36 36.6	97.90
WEDNESDAY 10.				FRIDAY 12.			
0	23 52 37.53	N. 3 35 40.1	127.98	0	1 41 4.11	N. 12 46 24.0	97.05
1	23 54 54.72	3 48 28.0	127.59	1	1 43 18.61	12 56 6.3	96.19
2	23 57 11.81	4 1 13.5	127.19	2	1 45 33.09	13 5 43.5	95.33
3	23 59 28.80	4 13 56.7	126.78	3	1 47 47.55	13 15 15.4	94.45
4	0 1 45.70	4 26 37.3	126.35	4	1 50 1.99	13 24 42.1	93.57
5	0 4 2.50	4 39 15.4	125.91	5	1 52 16.42	13 34 3.6	92.69
6	0 6 19.21	4 51 50.9	125.46	6	1 54 30.82	13 43 19.7	91.80
7	0 8 35.84	5 4 23.7	125.00	7	1 56 45.20	13 52 30.5	90.90
8	0 10 52.37	5 16 53.7	124.52	8	1 58 59.57	14 1 35.9	90.00
9	0 13 8.82	5 29 20.8	124.04	9	2 1 13.92	14 10 35.9	89.09
10	0 15 25.19	5 41 45.0	123.54	10	2 3 28.26	14 19 30.4	88.17
11	0 17 41.47	5 54 6.3	123.02	11	2 5 42.57	14 28 19.4	87.25
12	0 19 57.68	6 6 24.4	122.50	12	2 7 56.88	14 37 2.8	86.32
13	0 22 13.81	6 18 39.4	121.96	13	2 10 11.17	14 45 40.7	85.39
14	0 24 29.87	6 30 51.1	121.41	14	2 12 25.44	14 54 13.1	84.45
15	0 26 45.86	6 42 59.6	120.86	15	2 14 39.70	15 2 39.8	83.51
16	0 29 1.77	6 55 4.8	120.29	16	2 16 53.94	15 11 0.8	82.56
17	0 31 17.62	7 7 6.5	119.71	17	2 19 8.17	15 19 16.2	81.61
18	0 33 33.40	7 19 4.8	119.12	18	2 21 22.39	15 27 25.8	80.65
19	0 35 49.11	7 30 59.5	118.52	19	2 23 36.59	15 35 29.7	79.69
20	0 38 4.77	7 42 50.7	117.91	20	2 25 50.78	15 43 27.9	78.72
21	0 40 20.36	7 54 38.2	117.29	21	2 28 4.95	15 51 20.2	77.75
22	0 42 35.89	8 6 21.9	116.66	22	2 30 19.11	15 59 6.7	76.78
23	0 44 51.36	8 18 1.9	116.02	23	2 32 33.26	16 6 47.4	75.80
24	0 47 6.78	N. 8 29 38.0		24	2 34 47.39	N. 16 14 22.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 13.				MONDAY 15.			
0	h m s	N. 16 14 22.2	74.82	0	h m s	N. 20 17 20.7	24.75
1	2 34 47.39	16 21 51.1	73.83	1	4 21 38.03	20 19 49.2	23.69
2	2 37 1.51	16 29 14.1	72.84	2	4 23 50.60	20 22 11.4	22.63
3	2 39 15.62	16 36 31.2	71.85	3	4 26 3.10	20 24 27.2	21.57
4	2 41 29.71	16 43 42.2	70.85	4	4 28 15.54	20 26 36.6	20.51
5	2 43 43.78	16 50 47.3	69.84	5	4 30 27.91	20 28 39.6	19.44
6	2 45 57.85	16 57 46.4	68.84	6	4 32 40.21	20 30 36.3	18.38
7	2 48 11.89	17 4 39.4	67.83	7	4 34 52.44	20 32 26.6	17.33
8	2 50 25.92	17 11 26.4	66.82	8	4 37 4.61	20 34 10.5	16.27
9	2 52 39.94	17 18 7.3	65.80	9	4 39 16.70	20 35 48.2	15.22
10	2 54 53.94	17 24 42.1	64.78	10	4 41 28.71	20 37 19.5	14.16
11	2 57 7.92	17 31 10.8	63.76	11	4 43 40.65	20 38 44.4	13.10
12	2 59 21.88	17 37 33.3	62.73	12	4 45 52.52	20 40 3.1	12.05
13	3 1 35.83	17 43 49.7	61.71	13	4 48 4.30	20 41 15.4	11.00
14	3 3 49.76	17 50 0.0	60.68	14	4 50 16.00	20 42 21.5	9.95
15	3 6 3.67	17 56 4.0	59.65	15	4 52 27.62	20 43 21.2	8.91
16	3 8 17.55	18 2 1.9	58.61	16	4 54 39.16	20 44 14.6	7.86
17	3 10 31.42	18 7 53.6	57.57	17	4 56 50.61	20 45 1.8	6.82
18	3 12 45.27	18 13 39.0	56.53	18	4 59 1.97	20 45 42.7	5.78
19	3 14 59.09	18 19 18.2	55.49	19	5 1 13.24	20 46 17.4	4.74
20	3 17 12.89	18 24 51.1	54.45	20	5 3 24.42	20 46 45.9	3.70
21	3 19 26.66	18 30 17.8	53.40	21	5 5 35.51	20 47 8.1	2.67
22	3 21 40.41	18 35 38.2	52.35	22	5 7 46.50	20 47 24.1	1.63
23	3 23 54.13	N. 18 40 52.3	51.30	23	5 9 57.40	N. 20 47 33.9	0.60
24	3 26 7.83			24	5 12 8.21		
SUNDAY 14.				TUESDAY 16.			
0	3 28 21.49	N. 18 46 0.1	50.25	0	5 14 18.91	N. 20 47 37.5	0.42
1	3 30 35.13	18 51 1.6	49.20	1	5 16 29.52	20 47 35.0	1.45
2	3 32 48.74	18 55 56.8	48.15	2	5 18 40.02	20 47 26.3	2.47
3	3 35 2.32	19 0 45.7	47.09	3	5 20 50.42	20 47 11.4	3.49
4	3 37 15.86	19 5 28.3	46.03	4	5 23 0.71	20 46 50.5	4.51
5	3 39 29.18	19 10 4.5	44.97	5	5 25 10.90	20 46 23.4	5.53
6	3 41 42.85	19 14 34.3	43.92	6	5 27 20.98	20 45 50.2	6.54
7	3 43 56.29	19 18 57.8	42.85	7	5 29 30.95	20 45 11.0	7.55
8	3 46 9.70	19 23 15.0	41.79	8	5 31 40.80	20 44 25.7	8.56
9	3 48 23.07	19 27 25.7	40.73	9	5 33 50.55	20 43 34.3	9.56
10	3 50 36.39	19 31 30.1	39.67	10	5 36 0.18	20 42 37.0	10.56
11	3 52 49.68	19 35 28.1	38.60	11	5 38 9.70	20 41 33.6	11.56
12	3 55 2.92	19 39 19.7	37.54	12	5 40 19.09	20 40 24.2	12.56
13	3 57 16.12	19 43 4.9	36.48	13	5 42 28.37	20 39 8.9	13.55
14	3 59 29.28	19 46 43.8	35.41	14	5 44 37.53	20 37 47.6	14.53
15	4 1 42.38	19 50 16.3	34.34	15	5 46 46.57	20 36 20.4	15.52
16	4 3 55.44	19 53 42.3	33.28	16	5 48 55.48	20 34 47.3	16.50
17	4 6 8.45	19 57 2.0	32.21	17	5 51 4.27	20 33 8.3	17.48
18	4 8 21.41	20 0 15.3	31.15	18	5 53 12.94	20 31 23.4	18.45
19	4 10 34.32	20 3 22.2	30.08	19	5 55 21.48	20 29 32.7	19.42
20	4 12 47.18	20 6 22.6	29.02	20	5 57 29.89	20 27 36.2	20.39
21	4 14 59.98	20 9 16.7	27.95	21	5 59 38.17	20 25 33.9	21.35
22	4 17 12.72	20 12 4.4	26.88	22	6 1 46.32	20 23 25.8	22.31
23	4 19 25.41	20 14 45.7	25.82	23	6 3 54.34	20 21 11.9	23.27
24	4 21 38.03	N. 20 17 20.7		24	6 6 2.23	N. 20 18 52.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
WEDNESDAY 17.				FRIDAY 19.			
0	6 ^h 6 ^m 2 ^s 23	N.20 18 52 [°] 3	24 ^{''} 22	0	7 45 29 ^h 19	N.16 43 28 [°] 5	64 ^{''} 47
1	6 8 9 ^h 08	20 16 27 [°] 0	25 ^{''} 17	1	7 47 29 ^h 77	16 37 1 [°] 7	65 ^{''} 18
2	6 10 17 ^h 60	20 13 56 [°] 0	26 ^{''} 12	2	7 49 30 ^h 20	16 30 30 [°] 6	65 ^{''} 89
3	6 12 25 ^h 08	20 11 19 [°] 3	27 ^{''} 05	3	7 51 30 ^h 48	16 23 55 [°] 2	66 ^{''} 59
4	6 14 32 ^h 43	20 8 37 [°] 0	27 ^{''} 99	4	7 53 30 ^h 61	16 17 15 [°] 7	67 ^{''} 28
5	6 16 39 ^h 63	20 5 49 [°] 1	28 ^{''} 92	5	7 55 30 ^h 59	16 10 32 [°] 0	67 ^{''} 97
6	6 18 46 ^h 70	20 2 55 [°] 6	29 ^{''} 84	6	7 57 30 ^h 42	16 3 44 [°] 2	68 ^{''} 65
7	6 20 53 ^h 62	19 59 56 [°] 6	30 ^{''} 76	7	7 59 30 ^h 10	15 56 52 [°] 3	69 ^{''} 33
8	6 23 0 ^h 41	19 56 52 [°] 0	31 ^{''} 68	8	8 1 29 ^h 64	15 49 56 [°] 3	70 ^{''} 00
9	6 25 7 ^h 06	19 53 41 [°] 9	32 ^{''} 60	9	8 3 29 ^h 02	15 42 56 [°] 3	70 ^{''} 66
10	6 27 13 ^h 56	19 50 26 [°] 3	33 ^{''} 51	10	8 5 28 ^h 26	15 35 52 [°] 3	71 ^{''} 32
11	6 29 19 ^h 92	19 47 5 [°] 2	34 ^{''} 42	11	8 7 27 ^h 36	15 28 44 [°] 4	71 ^{''} 97
12	6 31 26 ^h 13	19 43 38 [°] 7	35 ^{''} 32	12	8 9 26 ^h 30	15 21 32 [°] 5	72 ^{''} 63
13	6 33 32 ^h 20	19 40 6 [°] 8	36 ^{''} 22	13	8 11 25 ^h 10	15 14 16 [°] 7	73 ^{''} 27
14	6 35 38 ^h 12	19 36 29 [°] 5	37 ^{''} 11	14	8 13 23 ^h 76	15 6 57 [°] 1	73 ^{''} 91
15	6 37 43 ^h 90	19 32 46 [°] 8	37 ^{''} 99	15	8 15 22 ^h 28	14 59 33 [°] 7	74 ^{''} 53
16	6 39 49 ^h 52	19 28 58 [°] 9	38 ^{''} 88	16	8 17 20 ^h 66	14 52 6 [°] 5	75 ^{''} 16
17	6 41 55 ^h 00	19 25 5 [°] 6	39 ^{''} 76	17	8 19 18 ^h 90	14 44 35 [°] 5	75 ^{''} 78
18	6 44 0 ^h 33	19 21 7 [°] 1	40 ^{''} 63	18	8 21 16 ^h 99	14 37 0 [°] 8	76 ^{''} 39
19	6 46 5 ^h 51	19 17 3 [°] 3	41 ^{''} 50	19	8 23 14 ^h 95	14 29 22 [°] 5	77 ^{''} 00
20	6 48 10 ^h 54	19 12 54 [°] 3	42 ^{''} 36	20	8 25 12 ^h 77	14 21 40 [°] 5	77 ^{''} 60
21	6 50 15 ^h 42	19 8 40 [°] 1	43 ^{''} 22	21	8 27 10 ^h 45	14 13 55 [°] 0	78 ^{''} 19
22	6 52 20 ^h 15	19 4 20 [°] 8	44 ^{''} 08	22	8 29 8 ^h 00	14 6 5 [°] 8	78 ^{''} 78
23	6 54 24 ^h 73	N.18 59 56 [°] 3	44 ^{''} 93	23	8 31 5 ^h 41	N.13 58 13 [°] 1	79 ^{''} 36
THURSDAY 18.				SATURDAY 20.			
0	6 56 29 ^h 15	N.18 55 26 [°] 7	45 ^{''} 77	0	8 33 2 ^h 69	N.13 50 17 [°] 0	79 ^{''} 94
1	6 58 33 ^h 42	18 50 52 [°] 1	46 ^{''} 61	1	8 34 59 ^h 84	13 42 17 [°] 4	80 ^{''} 51
2	7 0 37 ^h 54	18 46 12 [°] 4	47 ^{''} 44	2	8 36 56 ^h 85	13 34 14 [°] 3	81 ^{''} 08
3	7 2 41 ^h 51	18 41 27 [°] 8	48 ^{''} 27	3	8 38 53 ^h 74	13 26 7 [°] 8	81 ^{''} 64
4	7 4 45 ^h 32	18 36 38 [°] 1	49 ^{''} 10	4	8 40 50 ^h 50	13 17 58 [°] 0	82 ^{''} 19
5	7 6 48 ^h 98	18 31 43 [°] 6	49 ^{''} 92	5	8 42 47 ^h 13	13 9 44 [°] 9	82 ^{''} 73
6	7 8 52 ^h 48	18 26 44 [°] 1	50 ^{''} 73	6	8 44 43 ^h 63	13 1 28 [°] 5	83 ^{''} 27
7	7 10 55 ^h 83	18 21 39 [°] 7	51 ^{''} 54	7	8 46 40 ^h 01	12 53 8 [°] 9	83 ^{''} 81
8	7 12 59 ^h 03	18 16 30 [°] 4	52 ^{''} 34	8	8 48 36 ^h 27	12 44 46 [°] 0	84 ^{''} 34
9	7 15 2 ^h 07	18 11 16 [°] 4	53 ^{''} 14	9	8 50 32 ^h 40	12 36 20 [°] 0	84 ^{''} 86
10	7 17 4 ^h 96	18 5 57 [°] 5	53 ^{''} 94	10	8 52 28 ^h 41	12 27 50 [°] 9	85 ^{''} 37
11	7 19 7 ^h 70	18 0 33 [°] 9	54 ^{''} 73	11	8 54 24 ^h 30	12 19 18 [°] 6	85 ^{''} 88
12	7 21 10 ^h 27	17 55 5 [°] 5	55 ^{''} 51	12	8 56 20 ^h 07	12 10 43 [°] 3	86 ^{''} 39
13	7 23 12 ^h 69	17 49 32 [°] 5	56 ^{''} 28	13	8 58 15 ^h 73	12 2 5 [°] 0	86 ^{''} 89
14	7 25 14 ^h 96	17 43 54 [°] 7	57 ^{''} 06	14	9 0 11 ^h 27	11 53 23 [°] 7	87 ^{''} 38
15	7 27 17 ^h 08	17 38 12 [°] 4	57 ^{''} 82	15	9 2 6 ^h 71	11 44 39 [°] 4	87 ^{''} 86
16	7 29 19 ^h 04	17 32 25 [°] 5	58 ^{''} 58	16	9 4 2 ^h 03	11 35 52 [°] 2	88 ^{''} 34
17	7 31 20 ^h 85	17 26 34 [°] 0	59 ^{''} 34	17	9 5 57 ^h 24	11 27 2 [°] 2	88 ^{''} 81
18	7 33 22 ^h 50	17 20 37 [°] 9	60 ^{''} 09	18	9 7 52 ^h 34	11 18 9 [°] 3	89 ^{''} 28
19	7 35 24 ^h 00	17 14 37 [°] 4	60 ^{''} 83	19	9 9 47 ^h 33	11 9 13 [°] 6	89 ^{''} 74
20	7 37 25 ^h 34	17 8 32 [°] 4	61 ^{''} 57	20	9 11 42 ^h 22	11 0 15 [°] 1	90 ^{''} 20
21	7 39 26 ^h 53	17 2 23 [°] 0	62 ^{''} 30	21	9 13 37 ^h 01	10 51 13 [°] 9	90 ^{''} 65
22	7 41 27 ^h 57	16 56 9 [°] 2	63 ^{''} 03	22	9 15 31 ^h 69	10 42 10 [°] 0	91 ^{''} 09
23	7 43 28 ^h 46	16 49 51 [°] 0	63 ^{''} 75	23	9 17 26 ^h 27	10 33 3 [°] 5	91 ^{''} 53
24	7 45 29 ^h 19	N.16 43 28 [°] 5		24	9 19 20 ^h 76	N.10 23 54 [°] 3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 21.				TUESDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	9 19 20.76	N. 10 23 54.3	91.96	0	10 49 38.80	N. 2 25 30.8	105.21
1	9 21 15.15	10 14 42.6	92.38	1	10 51 30.95	2 14 59.5	105.33
2	9 23 9.44	10 5 28.2	92.80	2	10 53 23.11	2 4 27.5	105.44
3	9 25 3.65	9 56 11.4	93.21	3	10 55 15.29	1 53 54.8	105.55
4	9 26 57.76	9 46 52.2	93.62	4	10 57 7.48	1 43 21.5	105.65
5	9 28 51.78	9 37 30.4	94.02	5	10 58 59.68	1 32 47.6	105.74
6	9 30 45.71	9 28 6.3	94.41	6	11 0 51.91	1 22 13.2	105.83
7	9 32 39.56	9 18 39.9	94.80	7	11 2 44.16	1 11 38.2	105.91
8	9 34 33.32	9 9 11.1	95.18	8	11 4 36.43	1 1 2.8	105.98
9	9 36 27.01	8 59 40.0	95.55	9	11 6 28.72	0 50 26.9	106.05
10	9 38 20.61	8 50 6.7	95.92	10	11 8 21.05	0 39 50.6	106.11
11	9 40 14.13	8 40 31.2	96.28	11	11 10 13.41	0 29 14.0	106.16
12	9 42 7.57	8 30 53.5	96.64	12	11 12 5.81	0 18 37.0	106.21
13	9 44 0.94	8 21 13.7	96.99	13	11 13 58.24	N. 0 7 59.8	106.25
14	9 45 54.24	8 11 31.8	97.33	14	11 15 50.72	S. 0 2 37.7	106.28
15	9 47 47.48	8 1 47.8	97.67	15	11 17 43.23	0 13 15.4	106.31
16	9 49 40.64	7 52 1.8	98.00	16	11 19 35.79	0 23 53.3	106.33
17	9 51 33.73	7 42 13.8	98.32	17	11 21 28.40	0 34 31.2	106.34
18	9 53 26.77	7 32 23.8	98.64	18	11 23 21.06	0 45 9.2	106.35
19	9 55 19.74	7 22 32.0	98.95	19	11 25 13.77	0 55 47.3	106.35
20	9 57 12.64	7 12 38.3	99.26	20	11 27 6.54	1 6 25.4	106.34
21	9 59 5.49	7 2 42.7	99.56	21	11 28 59.36	1 17 3.4	106.32
22	10 0 58.29	6 52 45.4	99.85	22	11 30 52.25	1 27 41.3	106.30
23	10 2 51.03	N. 6 42 46.3	100.13	23	11 32 45.20	S. 1 38 19.1	106.27
MONDAY 22.				WEDNESDAY 24.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	10 4 43.72	N. 6 32 45.6	100.41	0	11 34 38.21	S. 1 48 56.8	106.24
1	10 6 36.36	6 22 43.1	100.68	1	11 36 31.30	1 59 34.2	106.20
2	10 8 28.96	6 12 39.0	100.95	2	11 38 24.45	2 10 11.4	106.15
3	10 10 21.51	6 2 33.3	101.21	3	11 40 17.68	2 20 48.3	106.10
4	10 12 14.02	5 52 26.0	101.47	4	11 42 10.99	2 31 24.9	106.03
5	10 14 6.49	5 42 17.2	101.72	5	11 44 4.37	2 42 1.1	105.96
6	10 15 58.92	5 32 6.9	101.96	6	11 45 57.84	2 52 36.9	105.89
7	10 17 51.31	5 21 55.2	102.19	7	11 47 51.39	3 3 12.2	105.80
8	10 19 43.67	5 11 42.0	102.42	8	11 49 45.03	3 13 47.0	105.71
9	10 21 36.00	5 1 27.5	102.65	9	11 51 38.76	3 24 21.3	105.61
10	10 23 28.30	4 51 11.6	102.86	10	11 53 32.58	3 34 55.0	105.51
11	10 25 20.58	4 40 54.5	103.07	11	11 55 26.49	3 45 28.1	105.40
12	10 27 12.82	4 30 36.1	103.27	12	11 57 20.50	3 56 0.4	105.28
13	10 29 5.05	4 20 16.5	103.47	13	11 59 14.61	4 6 32.1	105.16
14	10 30 57.26	4 9 55.6	103.66	14	12 1 8.82	4 17 3.1	105.03
15	10 32 49.45	3 59 33.7	103.85	15	12 3 3.14	4 27 33.2	104.89
16	10 34 41.62	3 49 10.6	104.02	16	12 4 57.57	4 38 2.6	104.74
17	10 36 33.79	3 38 46.4	104.19	17	12 6 52.10	4 48 31.0	104.59
18	10 38 25.94	3 28 21.3	104.36	18	12 8 46.75	4 58 58.5	104.43
19	10 40 18.09	3 17 55.1	104.52	19	12 10 41.52	5 9 25.1	104.26
20	10 42 10.23	3 7 28.0	104.67	20	12 12 36.40	5 19 50.7	104.08
21	10 44 2.37	2 57 0.0	104.82	21	12 14 31.41	5 30 15.2	103.90
22	10 45 54.51	2 46 31.1	104.96	22	12 16 26.54	5 40 38.6	103.71
23	10 47 46.65	2 36 1.3	105.09	23	12 18 21.80	5 51 0.8	103.51
24	10 49 38.80	N. 2 25 30.8		24	12 20 17.19	S. 6 1 21.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 25.				SATURDAY 27.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	12 20 17.19	S. 6 1 21.9	103.31	0	13 55 57.80	S. 13 40 7.4	84.38
1	12 22 12.71	6 11 41.8	103.10	1	13 58 2.56	13 48 33.7	83.78
2	12 24 8.37	6 22 0.4	102.88	2	14 0 7.57	13 56 56.4	83.18
3	12 26 4.16	6 32 17.6	102.65	3	14 2 12.83	14 5 15.4	82.57
4	12 28 0.10	6 42 33.6	102.42	4	14 4 18.33	14 13 30.8	81.94
5	12 29 56.18	6 52 48.1	102.18	5	14 6 24.09	14 21 42.5	81.31
6	12 31 52.40	7 3 1.2	101.93	6	14 8 30.10	14 29 50.3	80.67
7	12 33 48.77	7 13 12.7	101.67	7	14 10 36.36	14 37 54.4	80.02
8	12 35 45.29	7 23 22.8	101.41	8	14 12 42.88	14 45 54.5	79.37
9	12 37 41.96	7 33 31.2	101.14	9	14 14 49.65	14 53 50.7	78.70
10	12 39 38.79	7 43 38.0	100.86	10	14 16 56.68	15 1 42.9	78.03
11	12 41 35.78	7 53 43.2	100.57	11	14 19 3.97	15 9 31.1	77.35
12	12 43 32.93	8 3 46.6	100.28	12	14 21 11.52	15 17 15.2	76.65
13	12 45 30.24	8 13 48.3	99.98	13	14 23 19.33	15 24 55.1	75.95
14	12 47 27.72	8 23 48.1	99.67	14	14 25 27.41	15 32 30.8	75.24
15	12 49 25.36	8 33 46.1	99.35	15	14 27 35.76	15 40 2.3	74.52
16	12 51 23.18	8 43 42.2	99.03	16	14 29 44.37	15 47 29.4	73.79
17	12 53 21.17	8 53 36.4	98.69	17	14 31 53.24	15 54 52.2	73.06
18	12 55 19.33	9 3 28.6	98.35	18	14 34 2.39	16 2 10.5	72.31
19	12 57 17.67	9 13 18.7	98.01	19	14 36 11.80	16 9 24.4	71.55
20	12 59 16.20	9 23 6.7	97.65	20	14 38 21.48	16 16 33.7	70.79
21	13 1 14.91	9 32 52.6	97.29	21	14 40 31.43	16 23 38.5	70.02
22	13 3 13.80	9 42 36.3	96.91	22	14 42 41.66	16 30 38.6	69.23
23	13 5 12.88	S. 9 52 17.8	96.53	23	14 44 52.16	S. 16 37 34.0	68.44
FRIDAY 26.				SUNDAY 28.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	13 7 12.15	S. 10 1 57.0	96.15	0	14 47 2.93	S. 16 44 24.6	67.64
1	13 9 11.62	10 11 33.9	95.75	1	14 49 13.97	16 51 10.5	66.83
2	13 11 11.28	10 21 8.4	95.35	2	14 51 25.29	16 57 51.5	66.02
3	13 13 11.13	10 30 40.5	94.94	3	14 53 36.88	17 4 27.6	65.19
4	13 15 11.19	10 40 10.1	94.52	4	14 55 48.75	17 10 58.7	64.35
5	13 17 11.45	10 49 37.2	94.09	5	14 58 0.89	17 17 24.8	63.51
6	13 19 11.92	10 59 1.7	93.65	6	15 0 13.31	17 23 45.9	62.66
7	13 21 12.59	11 8 23.6	93.21	7	15 2 26.01	17 30 1.8	61.79
8	13 23 13.47	11 17 42.9	92.75	8	15 4 38.98	17 36 12.6	60.92
9	13 25 14.57	11 26 59.4	92.29	9	15 6 52.23	17 42 18.1	60.04
10	13 27 15.87	11 36 13.1	91.82	10	15 9 5.75	17 48 18.4	59.15
11	13 29 17.40	11 45 24.1	91.34	11	15 11 19.56	17 54 13.3	58.25
12	13 31 19.14	11 54 32.1	90.86	12	15 13 33.64	18 0 2.8	57.34
13	13 33 21.10	12 3 37.3	90.37	13	15 15 48.00	18 5 46.9	56.42
14	13 35 23.29	12 12 39.5	89.87	14	15 18 2.63	18 11 25.4	55.50
15	13 37 25.70	12 21 38.7	89.36	15	15 20 17.54	18 16 58.4	54.57
16	13 39 28.33	12 30 34.8	88.84	16	15 22 32.73	18 22 25.8	53.62
17	13 41 31.19	12 39 27.8	88.31	17	15 24 48.20	18 27 47.5	52.67
18	13 43 34.29	12 48 17.7	87.77	18	15 27 3.93	18 33 3.5	51.71
19	13 45 37.62	12 57 4.3	87.23	19	15 29 19.95	18 38 13.8	50.74
20	13 47 41.18	13 5 47.7	86.67	20	15 31 36.24	18 43 18.2	49.76
21	13 49 44.97	13 14 27.7	86.11	21	15 33 52.80	18 48 16.8	48.77
22	13 51 49.01	13 23 4.4	85.54	22	15 36 9.63	18 53 9.4	47.77
23	13 53 53.29	13 31 37.7	84.96	23	15 38 26.74	18 57 56.0	46.77
	13 55 57.80	S. 13 40 7.4		24	15 40 44.12	S. 19 2 36.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
MONDAY 29.			
	^h ^m ^s	[°] ['] ["]	["]
0	15 40 44.12	S. 19 2 36.7	45.76
1	15 43 1.77	19 7 11.3	44.74
2	15 45 19.68	19 11 39.7	43.71
3	15 47 37.87	19 16 2.0	42.67
4	15 49 56.32	19 20 18.0	41.62
5	15 52 15.03	19 24 27.7	40.57
6	15 54 34.01	19 28 31.1	39.50
7	15 56 53.26	19 32 28.1	38.43
8	15 59 12.76	19 36 18.7	37.35
9	16 1 32.52	19 40 2.8	36.26
10	16 3 52.54	19 43 40.4	35.16
11	16 6 12.82	19 47 11.3	34.06
12	16 8 33.36	19 50 35.6	32.95
13	16 10 54.14	19 53 53.3	31.83
14	16 13 15.18	19 57 4.2	30.70
15	16 15 36.46	20 0 8.4	29.56
16	16 17 57.99	20 3 5.8	28.42
17	16 20 19.76	20 5 56.3	27.27
18	16 22 41.78	20 8 39.9	26.11
19	16 25 4.03	20 11 16.5	24.94
20	16 27 26.53	20 13 46.2	23.77
21	16 29 49.26	20 16 8.8	22.59
22	16 32 12.22	20 18 24.3	21.40
23	16 34 35.41	S. 20 20 32.8	20.21
TUESDAY, MARCH 1.			
0	16 36 58.83	S. 20 22 34.0	

PHASES OF THE MOON.

		^d ^h ^m ^s
●	New Moon	- - 7 6 9.7
☾	First Quarter	- 14 1 24.2
○	Full Moon	- - 22 5 0.9

		^d ^h
☾	Perigee	- - - - 7 3
☾	Apogee	- - - - 20 9

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	Regulus W.	79 51 39	2621	81 30 6	2604	83 8 56	2586	84 48 10	2568
	Saturn W.	29 54 31	2677	31 31 42	2652	33 9 27	2629	34 47 43	2605
	Spica W.	25 53 19	2602	27 32 12	2585	29 11 28	2567	30 51 9	2549
	Venus E.	43 23 2	3013	41 53 6	2994	40 22 46	2976	38 52 3	2957
	Mars E.	45 25 57	2866	43 52 54	2849	42 19 30	2832	40 45 43	2815
	SUN E.	84 8 39	2966	82 37 43	2947	81 6 24	2928	79 34 41	2909
2	Regulus W.	93 10 34	2477	94 52 19	2459	96 34 30	2441	98 17 7	2423
	Saturn W.	43 6 47	2496	44 48 6	2475	46 29 54	2455	48 12 11	2434
	Spica W.	39 15 46	2458	40 57 59	2440	42 40 37	2421	44 23 42	2403
	Venus E.	31 12 25	2861	29 39 16	2841	28 5 42	2822	26 31 43	2803
	Mars E.	32 51 14	2730	31 15 14	2714	29 38 52	2699	28 2 10	2684
	SUN E.	71 50 0	2812	70 15 48	2793	68 41 11	2774	67 6 9	2754
3	Saturn W.	56 50 48	2335	58 35 57	2315	60 21 34	2297	62 7 38	2278
	Spica W.	53 5 43	2311	54 51 27	2293	56 37 37	2275	58 24 14	2257
	Jupiter W.	19 35 51	2349	21 20 39	2331	23 5 54	2312	24 51 36	2293
	SUN E.	59 4 33	2658	57 26 57	2640	55 48 56	2621	54 10 30	2603
4	Saturn W.	71 4 44	2190	72 53 27	2174	74 42 34	2157	76 32 6	2142
	Spica W.	67 23 47	2172	69 12 56	2156	71 2 30	2140	72 52 28	2126
	Jupiter W.	33 46 46	2206	35 35 5	2190	37 23 48	2174	39 12 54	2158
	Antares W.	22 34 5	2313	24 19 46	2278	26 6 18	2248	27 53 34	2221
	SUN E.	45 52 20	2520	44 11 34	2504	42 30 27	2490	40 49 0	2476
5	Saturn W.	85 45 23	2072	87 37 5	2060	89 29 5	2049	91 21 24	2039
	Spica W.	82 7 48	2057	83 59 53	2045	85 52 17	2034	87 44 59	2023
	Jupiter W.	48 24 6	2089	50 15 23	2077	52 6 58	2065	53 58 52	2054
	Antares W.	36 59 3	2115	38 49 40	2099	40 40 41	2083	42 32 7	2069
	SUN E.	32 17 24	2424	30 34 23	2417	28 51 13	2414	27 7 58	2412
9	SUN W.	25 14 14	2438	26 56 55	2442	28 39 31	2447	30 21 59	2454
	α Arietis E.	50 41 35	2128	48 51 18	2144	47 1 26	2162	45 12 2	2182
	Aldebaran E.	83 30 35	2058	81 38 31	2070	79 46 46	2083	77 55 21	2097
10	SUN W.	38 50 57	2513	40 31 52	2528	42 12 26	2543	43 52 39	2559
	α Arietis E.	36 13 6	2303	34 27 11	2333	32 42 0	2367	30 57 38	2404
	Aldebaran E.	68 43 44	2173	66 54 35	2189	65 5 51	2206	63 17 33	2224
	Pollux E.	110 53 48	2249	109 6 34	2264	107 19 41	2279	105 33 10	2294
11	SUN W.	52 7 55	2649	53 45 44	2667	55 23 8	2686	57 0 7	2705
	α Pegasi W.	27 22 21	3077	28 50 59	3013	30 20 56	2962	31 51 57	2922
	Aldebaran E.	54 22 41	2317	52 37 6	2335	50 51 58	2355	49 7 19	2375
	Pollux E.	96 46 30	2379	95 2 25	2397	93 18 46	2415	91 35 33	2434
12	SUN W.	64 58 29	2804	66 32 51	2824	68 6 48	2845	69 40 18	2864
	α Pegasi W.	39 36 32	2825	41 10 27	2819	42 44 30	2816	44 18 37	2816
	Aldebaran E.	40 31 15	2477	38 49 30	2498	37 8 14	2520	35 27 28	2541
	Pollux E.	83 6 11	2530	81 25 40	2550	79 45 36	2569	78 5 59	2589
13	SUN W.	77 21 31	2962	78 52 32	2981	80 23 8	3000	81 53 21	3018
	α Pegasi W.	52 8 35	2838	53 42 14	2845	55 15 43	2854	56 49 1	2863
	Pollux E.	69 54 41	2689	68 17 46	2709	66 41 18	2729	65 5 16	2749
	Regulus E.	106 28 49	2618	104 50 19	2636	103 12 13	2653	101 34 30	2670

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Regulus W.	86° 27' 49" 2550	88° 7' 53" 2532	89° 48' 21" 2514	91° 29' 15" 2496				
	Saturn W.	36° 26' 31" 2582	38° 5' 50" 2561	39° 45' 39" 2539	41° 25' 58" 2517				
	Spica W.	32° 31' 14" 2531	34° 11' 44" 2513	35° 52' 39" 2495	37° 34' 0" 2477				
	Venus E.	37° 20' 56" 2938	35° 49' 25" 2919	34° 17' 30" 2899	32° 45' 10" 2880				
	Mars E.	39° 11' 34" 2797	37° 37' 2" 2780	36° 2' 8" 2763	34° 26' 52" 2747				
	Sun E.	78° 2' 34" 2890	76° 30' 3" 2871	74° 57' 7" 2852	73° 23' 46" 2832				
2	Regulus W.	100° 0' 9" 2404	101° 43' 38" 2386	103° 27' 33" 2368	105° 11' 54" 2350				
	Saturn W.	49° 54' 57" 2414	51° 38' 12" 2394	53° 21' 56" 2374	55° 6' 8" 2355				
	Spica W.	46° 7' 13" 2384	47° 51' 10" 2365	49° 35' 35" 2347	51° 20' 26" 2329				
	Venus E.	24° 57' 19" 2785	23° 22' 31" 2766	21° 47' 19" 2749	20° 11' 44" 2732				
	Mars E.	26° 25' 9" 2670	24° 47' 49" 2658	23° 10' 12" 2647	21° 32' 21" 2638				
	Sun E.	65° 30' 41" 2735	63° 54' 48" 2715	62° 18' 28" 2696	60° 41' 43" 2677				
3	Saturn W.	63° 54' 10" 2260	65° 41' 9" 2241	67° 28' 35" 2224	69° 16' 26" 2206				
	Spica W.	60° 11' 17" 2239	61° 58' 46" 2222	63° 46' 41" 2205	65° 35' 1" 2188				
	Jupiter W.	26° 37' 46" 2275	28° 24' 22" 2257	30° 11' 24" 2240	31° 58' 52" 2223				
	Sun E.	52° 31' 39" 2585	50° 52' 24" 2569	49° 12' 46" 2551	47° 32' 44" 2535				
4	Saturn W.	78° 22' 1" 2127	80° 12' 19" 2112	82° 3' 0" 2099	83° 54' 1" 2085				
	Spica W.	74° 42' 48" 2111	76° 33' 31" 2096	78° 24' 36" 2083	80° 16' 2" 2070				
	Jupiter W.	41° 2' 25" 2143	42° 52' 18" 2129	44° 42' 33" 2115	46° 33' 10" 2102				
	Antares W.	29° 41' 31" 2196	31° 30' 5" 2173	33° 19' 14" 2152	35° 8' 54" 2133				
	Sun E.	39° 7' 13" 2464	37° 25' 9" 2452	35° 42' 48" 2442	34° 0' 12" 2433				
5	Saturn W.	93° 13' 58" 2028	95° 6' 49" 2019	96° 59' 54" 2010	98° 53' 13" 2002				
	Spica W.	89° 37' 58" 2012	91° 31' 13" 2003	93° 24' 42" 1995	95° 18' 24" 1987				
	Jupiter W.	55° 51' 2" 2044	57° 43' 28" 2034	59° 36' 10" 2025	61° 29' 5" 2017				
	Antares W.	44° 23' 54" 2056	46° 16' 1" 2044	48° 8' 27" 2033	50° 1' 10" 2023				
	Sun E.	25° 24' 40" 2413	23° 41' 23" 2417	21° 58' 13" 2426	20° 15' 16" 2442				
9	Sun W.	32° 4' 17" 2464	33° 46' 21" 2475	35° 28' 10" 2486	37° 9' 43" 2499				
	α Arietis E.	43° 23' 8" 2203	41° 34' 45" 2225	39° 46' 55" 2250	37° 59' 41" 2276				
	Aldebaran E.	76° 4' 17" 2111	74° 13' 34" 2126	72° 23' 14" 2141	70° 33' 17" 2157				
10	Sun W.	45° 32' 30" 2577	47° 11' 57" 2594	48° 51' 1" 2612	50° 29' 40" 2630				
	α Arietis E.	29° 14' 8" 2444	27° 31' 36" 2489	25° 50' 7" 2541	24° 9' 51" 2601				
	Aldebaran E.	61° 29' 41" 2241	59° 42' 15" 2260	57° 55' 16" 2278	56° 8' 45" 2297				
	Pollux E.	103° 47' 2" 2311	102° 1' 18" 2327	100° 15' 57" 2344	98° 31' 1" 2361				
11	Sun W.	58° 36' 40" 2725	60° 12' 46" 2744	61° 48' 27" 2765	63° 23' 41" 2785				
	α Pegasi W.	33° 23' 48" 2890	34° 56' 20" 2866	36° 29' 22" 2848	38° 2' 48" 2834				
	Aldebaran E.	47° 23' 8" 2395	45° 39' 26" 2415	43° 56' 13" 2436	42° 13' 30" 2456				
	Pollux E.	89° 52' 47" 2453	88° 10' 27" 2472	86° 28' 35" 2491	84° 47' 9" 2511				
12	Sun W.	71° 13' 23" 2884	72° 46' 3" 2904	74° 18' 17" 2924	75° 50' 6" 2943				
	α Pegasi W.	45° 52' 44" 2817	47° 26' 50" 2820	49° 0' 52" 2825	50° 34' 47" 2831				
	Aldebaran E.	33° 47' 12" 2563	32° 7' 26" 2585	30° 28' 11" 2609	28° 49' 28" 2632				
	Pollux E.	76° 26' 49" 2610	74° 48' 7" 2629	73° 9' 51" 2649	71° 32' 3" 2669				
13	Sun W.	83° 23' 11" 3037	84° 52' 38" 3055	86° 21' 43" 3073	87° 50' 26" 3090				
	α Pegasi W.	58° 22' 7" 2873	59° 55' 1" 2884	61° 27' 41" 2894	63° 0' 8" 2904				
	Pollux E.	63° 29' 41" 2768	61° 54' 31" 2788	60° 19' 48" 2808	58° 45' 31" 2828				
	Regulus E.	99° 57' 10" 2687	98° 20' 13" 2704	96° 43' 38" 2721	95° 7' 26" 2736				

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Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
14	SUN W.	89 18 48	3108	90 46 48	3124	92 14 28	3141	93 41 48	3158
	α Pegasi W.	64 32 22	2916	66 4 21	2926	67 36 7	2938	69 7 38	2949
	α Arietis W.	21 7 50	3099	22 36 1	3069	24 4 49	3046	25 34 5	3030
	Pollux E.	57 11 40	2848	55 38 15	2868	54 5 15	2889	52 32 42	2909
	Regulus E.	93 31 34	2752	91 56 3	2768	90 20 53	2783	88 46 3	2798
15	SUN W.	100 53 44	3233	102 19 14	3247	103 44 28	3261	105 9 25	3274
	α Pegasi W.	76 41 41	3005	78 11 48	3016	79 41 41	3026	81 11 21	3038
	α Arietis W.	33 3 40	3004	34 33 48	3005	36 3 55	3006	37 34 0	3009
	Pollux E.	44 56 28	3015	43 26 33	3038	41 57 7	3061	40 28 10	3085
	Regulus E.	80 56 36	2867	79 23 35	2881	77 50 52	2893	76 18 24	2905
16	SUN W.	112 10 30	3334	113 34 2	3345	114 57 22	3356	116 20 29	3366
	α Pegasi W.	88 36 25	3089	90 4 48	3098	91 33 0	3108	93 1 0	3117
	α Arietis W.	45 3 15	3031	46 32 49	3036	48 2 17	3042	49 31 38	3047
	Pollux E.	33 11 17	3229	31 45 42	3265	30 20 49	3304	28 56 42	3348
	Regulus E.	68 39 51	2962	67 8 50	2972	65 38 2	2981	64 7 26	2991
	Saturn E.	118 27 40	2951	116 56 26	2961	115 25 24	2970	113 54 33	2977
17	SUN W.	123 13 20	3411	124 35 24	3419	125 57 19	3427	127 19 5	3434
	α Arietis W.	56 56 50	3071	58 25 35	3076	59 54 14	3081	61 22 47	3085
	Aldebaran W.	23 34 12	3073	25 2 54	3073	26 31 37	3073	28 0 20	3074
	Regulus E.	56 37 16	3034	55 7 45	3042	53 38 24	3048	52 9 11	3056
	Saturn E.	106 22 43	3014	104 52 47	3020	103 22 59	3026	101 53 19	3031
	Spica E.	110 22 14	3006	108 52 8	3012	107 22 10	3018	105 52 19	3024
18	α Arietis W.	68 44 24	3103	70 12 30	3105	71 40 34	3108	73 8 34	3110
	Aldebaran W.	35 23 33	3081	36 52 6	3083	38 20 36	3084	39 49 5	3086
	Regulus E.	44 45 17	3090	43 16 55	3095	41 48 39	3101	40 20 31	3108
	Saturn E.	94 26 31	3054	92 57 25	3059	91 28 25	3062	89 59 29	3065
	Spica E.	98 24 48	3048	96 55 35	3052	95 26 27	3056	93 57 23	3059
19	α Arietis W.	80 27 54	3119	81 55 40	3121	83 23 24	3122	84 51 7	3123
	Aldebaran W.	47 11 4	3091	48 39 25	3092	50 7 44	3092	51 36 3	3093
	Regulus E.	33 1 46	3140	31 34 25	3148	30 7 13	3156	28 40 11	3166
	Saturn E.	82 35 39	3077	81 7 1	3079	79 38 26	3080	78 9 52	3081
	Spica E.	86 32 57	3071	85 4 12	3073	83 35 29	3078	82 6 47	3075
20	α Arietis W.	92 9 31	3124	93 37 11	3124	95 4 51	3124	96 32 31	3124
	Aldebaran W.	58 57 36	3092	60 25 56	3091	61 54 17	3090	63 22 39	3088
	Pollux W.	19 29 19	3868	20 43 11	3767	21 58 47	3683	23 15 52	3613
	Saturn E.	70 47 19	3084	69 18 50	3085	67 50 22	3084	66 21 53	3084
	Spica E.	74 43 32	3077	73 14 54	3077	71 46 16	3075	70 17 36	3075
	Jupiter E.	109 45 32	3101	108 17 24	3101	106 49 15	3100	105 21 5	3100
21	Aldebaran W.	70 44 54	3080	72 13 28	3078	73 42 4	3077	75 10 42	3074
	Pollux W.	29 56 47	3394	31 19 11	3365	32 42 8	3340	34 5 33	3318
	Saturn E.	58 59 20	3080	57 30 46	3080	56 2 12	3078	54 33 36	3077
	Spica E.	62 54 2	3068	61 25 13	3067	59 56 23	3065	58 27 30	3062
	Jupiter E.	97 59 56	3091	96 31 36	3090	95 3 14	3088	93 21 50	3085
22	Aldebaran W.	82 34 43	3060	84 3 41	3056	85 32 44	3053	87 1 51	3050
	Pollux W.	41 8 23	3233	42 33 53	3220	43 59 39	3208	45 25 39	3196
	Saturn E.	47 10 14	3071	45 41 29	3070	44 12 43	3069	42 43 55	3068

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Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
14	SUN W.	95 8 48	3173	96 35 30	3189	98 1 52	3204	99 27 57	3219
	α Pegasi W.	70 38 55	2960	72 9 58	2972	73 40 46	2982	75 11 21	2994
	α Arietis W.	27 3 40	3019	28 33 29	3011	30 3 28	3007	31 33 33	3005
	Pollux E.	51 0 34	2930	49 28 53	2950	47 57 38	2971	46 26 49	2993
	Regulus E.	87 11 32	2813	85 37 21	2827	84 3 28	2841	82 29 53	2855
15	SUN W.	106 34 7	3287	107 58 34	3299	109 22 47	3312	110 46 45	3323
	α Pegasi W.	82 40 47	3048	84 10 0	3058	85 39 1	3069	87 7 49	3078
	α Arietis W.	39 4 1	3013	40 33 58	3017	42 3 49	3022	43 33 35	3026
	Pollux E.	38 59 42	3111	37 31 45	3138	36 4 21	3166	34 37 31	3196
	Regulus E.	74 46 12	2917	73 14 15	2929	71 42 33	2940	70 11 5	2951
16	SUN W.	117 43 24	3375	119 6 9	3385	120 28 43	3394	121 51 6	3402
	α Pegasi W.	94 28 49	3126	95 56 27	3134	97 23 55	3144	98 51 11	3153
	α Arietis W.	51 0 53	3052	52 30 1	3056	53 59 4	3062	55 28 0	3067
	Pollux E.	27 33 26	3397	26 11 6	3453	24 49 49	3518	23 29 45	3593
	Regulus E.	62 37 2	3000	61 6 49	3009	59 36 47	3018	58 6 56	3026
	Saturn E.	112 23 52	2985	110 53 21	2993	109 23 0	3000	107 52 47	3007
17	SUN W.	128 40 43	3440	130 2 14	3448	131 23 36	3454	132 44 52	3461
	α Arietis W.	62 51 15	3088	64 19 39	3092	65 47 58	3096	67 16 13	3099
	Aldebaran W.	29 29 2	3075	30 57 42	3076	32 26 21	3078	33 54 58	3079
	Regulus E.	50 40 8	3063	49 11 13	3069	47 42 26	3077	46 13 48	3083
	Saturn E.	100 23 45	3036	98 54 17	3042	97 24 56	3047	95 55 41	3051
	Spica E.	104 22 36	3030	102 53 0	3035	101 23 30	3039	99 54 6	3044
18	α Arietis W.	74 36 31	3113	76 4 25	3115	77 32 17	3117	79 0 6	3118
	Aldebaran W.	41 17 32	3087	42 45 57	3088	44 14 21	3090	45 42 43	3091
	Regulus E.	38 52 31	3114	37 24 38	3120	35 56 52	3127	34 29 15	3133
	Saturn E.	88 30 36	3068	87 1 47	3071	85 33 2	3073	84 4 19	3075
	Spica E.	92 28 23	3062	90 59 27	3065	89 30 34	3067	88 1 44	3069
19	α Arietis W.	86 18 49	3124	87 46 30	3124	89 14 11	3124	90 41 51	3124
	Aldebaran W.	53 4 21	3093	54 32 39	3092	56 0 58	3092	57 29 17	3092
	Regulus E.	27 13 21	3176	25 46 43	3188	24 20 19	3202	22 54 12	3218
	Saturn E.	76 41 19	3082	75 12 48	3083	73 44 18	3083	72 15 48	3084
	Spica E.	80 38 7	3076	79 9 28	3076	77 40 49	3077	76 12 11	3076
20	α Arietis W.	98 0 12	3123	99 27 54	3122	100 55 37	3122	102 23 20	3121
	Aldebaran W.	64 51 3	3087	66 19 28	3086	67 47 54	3084	69 16 23	3082
	Pollux W.	24 34 12	3555	25 53 36	3506	27 13 54	3463	28 35 0	3426
	Saturn E.	64 53 24	3083	63 24 54	3082	61 56 23	3082	60 27 52	3082
	Spica E.	68 48 56	3074	67 20 15	3073	65 51 32	3072	64 22 48	3070
	Jupiter E.	103 52 55	3098	102 24 43	3096	100 56 29	3095	99 28 14	3093
21	Aldebaran W.	76 39 24	3071	78 8 9	3069	79 36 57	3066	81 5 48	3063
	Pollux W.	35 29 24	3298	36 53 38	3279	38 18 14	3263	39 43 9	3247
	Saturn E.	53 4 58	3076	51 36 19	3075	50 7 39	3074	48 38 57	3073
	Spica E.	56 58 34	3060	55 29 35	3057	54 0 33	3055	52 31 29	3052
	Jupiter E.	92 6 22	3082	90 37 51	3080	89 9 17	3078	87 40 40	3074
22	Aldebaran W.	88 31 2	3047	90 0 17	3043	91 29 37	3039	92 59 1	3034
	Pollux W.	46 51 53	3185	48 18 20	3174	49 45 0	3164	51 11 52	3155
	Saturn E.	41 15 6	3067	39 46 16	3066	38 17 25	3066	36 48 34	306

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22	Spica E.	51 2 20	3049	49 33 8	3046	48 3 52	3043	46 34 32	3039
	Jupiter E.	86 11 59	3071	84 43 14	3068	83 14 25	3065	81 45 32	3061
	Antares E.	96 32 16	3073	95 3 33	3069	93 34 45	3065	92 5 53	3063
23	Aldebaran W.	94 28 31	3030	95 58 6	3026	97 27 46	3022	98 57 31	3018
	Pollux W.	52 38 55	3146	54 6 9	3137	55 33 34	3128	57 1 10	3120
	Regulus W.	15 44 51	3276	17 9 30	3233	18 35 0	3198	20 1 12	3168
	Saturn E.	35 19 42	3066	33 50 51	3066	32 22 0	3068	30 53 11	3070
	Spica E.	39 6 46	3020	37 36 58	3016	36 7 5	3011	34 37 6	3007
	Jupiter E.	74 19 57	3043	72 50 35	3037	71 21 8	3032	69 51 35	3027
	Antares E.	84 40 29	3043	83 11 10	3039	81 41 46	3035	80 12 16	3031
24	Pollux W.	64 21 36	3079	65 50 11	3072	67 18 54	3064	68 47 47	3057
	Regulus W.	27 19 32	3071	28 48 17	3058	30 17 18	3046	31 46 34	3034
	Jupiter E.	62 22 18	3002	60 52 8	2996	59 21 50	2990	57 51 25	2985
	Antares E.	72 43 27	3007	71 13 23	3003	69 43 14	2998	68 12 58	2993
	Mars E.	115 5 19	3276	113 40 39	3270	112 15 52	3264	110 50 59	3258
25	Pollux W.	76 14 32	3019	77 44 21	3011	79 14 20	3003	80 44 20	2996
	Regulus W.	39 16 23	2931	40 46 59	2972	42 17 47	2963	43 48 46	2953
	Jupiter E.	50 17 26	2953	48 46 14	2946	47 14 53	2939	45 43 23	2931
	Antares E.	60 40 0	2965	59 9 4	2960	57 38 1	2954	56 6 50	2948
	Mars E.	103 44 35	3223	102 18 53	3216	100 53 3	3209	99 27 5	3201
	Venus E.	112 55 27	3400	111 33 11	3393	110 10 47	3386	108 48 14	3378
26	Pollux W.	88 17 40	2955	89 48 49	2947	91 20 8	2939	92 51 38	2931
	Regulus W.	51 26 43	2906	52 58 54	2897	54 31 17	2887	56 3 53	2877
	Jupiter E.	38 3 30	2892	36 31 1	2884	34 58 21	2875	33 25 30	2866
	Antares E.	48 29 4	2917	46 57 7	2912	45 25 4	2905	43 52 52	2900
	Mars E.	92 14 51	3160	90 47 54	3152	89 20 47	3143	87 53 20	3134
	Venus E.	101 53 10	3335	100 29 39	3326	99 5 58	3317	97 42 6	3307
	SUN E.	137 48 30	3277	136 23 52	3267	134 59 2	3255	133 33 58	3245
27	Regulus W.	63 50 3	2826	65 23 57	2816	66 58 4	2805	68 32 26	2793
	Antares E.	36 10 6	2873	34 37 13	2869	33 4 15	2866	31 31 12	2863
	Mars E.	80 34 10	3085	79 5 42	3074	77 37 1	3064	76 8 7	3053
	α Aquilæ E.	89 10 4	3215	87 44 12	3206	86 18 10	3197	84 51 57	3188
	Venus E.	90 39 53	3256	89 14 50	3245	87 49 34	3234	86 24 5	3222
	SUN E.	126 25 24	3188	124 59 0	3176	123 32 22	3164	122 5 30	3152
28	Regulus W.	76 27 58	2736	78 3 50	2723	79 39 59	2711	81 16 24	2699
	Saturn W.	27 23 50	2788	28 58 34	2768	30 33 44	2748	32 9 21	2729
	Spica W.	22 29 48	2716	24 6 7	2704	25 42 42	2691	27 19 34	2678
	Mars E.	68 40 11	2996	67 9 53	2984	65 39 20	2971	64 8 31	2958
	α Aquilæ E.	77 38 29	3152	76 11 22	3146	74 44 8	3141	73 16 48	3136
	Venus E.	79 13 10	3162	77 46 15	3148	76 19 4	3136	74 51 38	3123
	SUN E.	114 47 23	3087	113 18 58	3074	111 50 17	3061	110 21 19	3047
29	Saturn W.	40 13 27	2642	41 51 25	2625	43 29 46	2609	45 8 20	2593
	Spica W.	35 28 11	2613	37 6 48	2599	38 45 44	2586	40 24 58	2571
	Mars E.	56 30 27	2894	54 58 1	2880	53 25 17	2868	51 52 17	2854
	α Aquilæ E.	65 58 58	3124	64 31 17	3124	63 3 37	3126	61 35 59	3119
	Venus E.	67 30 19	3053	66 1 12	3038	64 31 47	3024	63 2 4	3009
	SUN E.	102 52 8	2974	101 21 23	2959	99 50 19	2944	98 18 56	2929

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		° ' "		° ' "		° ' "		° ' "	
22	Spica E.	45 5 8	3036	43 35 40	3032	42 6 7	3028	40 36 29	3024
	Jupiter E.	80 16 35	3057	78 47 33	3053	77 18 26	3049	75 49 14	3045
	Antares E.	90 36 58	3059	89 7 58	3055	87 38 53	3051	86 9 43	3047
23	Aldebaran W.	100 27 22	3014	101 57 18	3009	103 27 20	3003	104 57 29	2998
	Pollux W.	58 28 55	3111	59 56 51	3103	61 24 57	3096	62 53 12	3088
	Regulus W.	21 28 0	3143	22 55 17	3122	24 23 0	3103	25 51 6	3086
	Saturn E.	29 24 25	3073	27 55 43	3077	26 27 6	3083	24 58 36	3091
	Spica E.	33 7 2	3002	31 36 52	2997	30 6 36	2993	28 36 14	2988
	Jupiter E.	68 21 56	3022	66 52 11	3017	65 22 20	3012	63 52 22	3007
	Antares E.	78 42 42	3026	77 13 1	3022	75 43 16	3017	74 13 24	3013
24	Pollux W.	70 16 49	3049	71 46 1	3042	73 15 22	3034	74 44 52	3026
	Regulus W.	33 16 5	3022	34 45 50	3012	36 15 48	3002	37 45 59	2991
	Jupiter E.	56 20 53	2978	54 50 13	2972	53 19 25	2966	51 48 30	2959
	Antares E.	66 42 36	2987	65 12 7	2982	63 41 32	2977	62 10 50	2970
	Mars E.	109 25 58	3251	108 0 49	3244	106 35 32	3237	105 10 7	3231
25	Pollux W.	82 14 47	2988	83 45 15	2980	85 15 53	2971	86 46 42	2964
	Regulus W.	45 19 58	2944	46 51 21	2934	48 22 57	2925	49 54 44	2916
	Jupiter E.	44 11 43	2924	42 39 55	2916	41 7 57	2908	39 35 48	2901
	Antares E.	54 35 32	2943	53 4 6	2936	51 32 33	2930	50 0 52	2924
	Mars E.	98 0 57	3193	96 34 40	3185	95 8 13	3177	93 41 37	3169
	Venus E.	107 25 33	3369	106 2 41	3362	104 39 41	3353	103 16 30	3344
26	Pollux W.	94 23 18	2922	95 55 9	2913	97 27 12	2905	98 59 25	2895
	Regulus W.	57 36 41	2867	59 9 42	2857	60 42 56	2847	62 16 23	2837
	Jupiter E.	31 52 28	2857	30 19 14	2848	28 45 48	2838	27 12 10	2828
	Antares E.	42 20 33	2894	40 48 7	2888	39 15 33	2883	37 42 53	2878
	Mars E.	86 26 1	3124	84 58 21	3114	83 30 29	3105	82 2 25	3096
	Venus E.	96 18 3	3297	94 53 48	3288	93 29 22	3277	92 4 44	3266
	Sun E.	132 8 42	3234	130 43 13	3222	129 17 30	3211	127 51 34	3199
27	Regulus W.	70 7 3	2782	71 41 54	2771	73 17 0	2759	74 52 21	2747
	Antares E.	29 58 6	2862	28 24 59	2862	26 51 51	2864	25 18 46	2868
	Mars E.	74 39 0	3042	73 9 39	3031	71 40 4	3019	70 10 15	3007
	α Aquilæ E.	83 25 34	3180	81 59 1	3172	80 32 19	3165	79 5 28	3158
	Venus E.	84 58 22	3211	83 32 26	3199	82 6 15	3187	80 39 50	3174
	Sun E.	120 38 23	3139	119 11 1	3127	117 43 24	3114	116 15 31	3101
28	Regulus W.	82 53 6	2686	84 30 5	2672	86 7 22	2660	87 44 56	2646
	Saturn W.	33 45 23	2711	35 21 49	2693	36 58 39	2676	38 35 51	2658
	Spica W.	28 56 43	2666	30 34 8	2653	32 11 51	2640	33 49 52	2627
	Mars E.	62 37 26	2946	61 6 6	2934	59 34 30	2920	58 2 37	2907
	α Aquilæ E.	71 49 22	3132	70 21 51	3129	68 54 16	3126	67 26 38	3124
	Venus E.	73 23 56	3109	71 55 57	3095	70 27 41	3082	68 59 9	3067
	Sun E.	108 52 4	3033	107 22 32	3018	105 52 42	3004	104 22 34	2989
29	Saturn W.	46 47 34	2576	48 27 2	2560	50 6 52	2544	51 47 4	2528
	Spica W.	42 4 33	2558	43 44 26	2543	45 24 40	2528	47 5 14	2514
	Mars E.	50 18 59	2841	48 45 24	2827	47 11 31	2814	45 37 21	2800
	α Aquilæ E.	60 8 25	3134	58 40 57	3141	57 13 37	3149	55 46 26	3160
	Venus E.	61 32 2	2994	60 1 42	2979	58 31 3	2965	57 0 6	2949
	Sun E.	96 47 14	2913	95 15 12	2898	93 42 50	2882	92 10 8	286

Day of the Month.	AIRY's Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1°09126	1°60297	0°20207	1°48397	70°709
2	1°08262	1°60029	0°20278	1°48379	71°246
3	1°07396	1°59754	0°20349	1°48362	71°785
4	1°06527	1°59472	0°20418	1°48344	72°325
5	1°05657	1°59183	0°20486	1°48326	72°866
6	1°04787	1°58888	0°20554	1°48309	73°407
7	1°03916	1°58586	0°20620	1°48291	73°950
8	1°03045	1°58277	0°20685	1°48273	74°493
9	1°02175	1°57962	0°20750	1°48256	75°035
10	1°01308	1°57640	0°20814	1°48239	75°577
11	1°00443	1°57311	0°20877	1°48222	76°118
12	0°99581	1°56975	0°20939	1°48205	76°658
13	0°98722	1°56633	0°21000	1°48189	77°198
14	0°97868	1°56283	0°21060	1°48173	77°737
15	0°97018	1°55926	0°21118	1°48158	78°274
16	0°96176	1°55562	0°21176	1°48143	78°810
17	0°95342	1°55191	0°21234	1°48128	79°344
18	0°94517	1°54813	0°21291	1°48114	79°876
19	0°93701	1°54428	0°21347	1°48100	80°407
20	0°92896	1°54036	0°21402	1°48086	80°935
21	0°92101	1°53637	0°21456	1°48073	81°461
22	0°91319	1°53231	0°21510	1°48060	81°982
23	0°90552	1°52817	0°21563	1°48048	82°501
24	0°89799	1°52396	0°21615	1°48037	83°018
25	0°89066	1°51967	0°21667	1°48026	83°532
26	0°88350	1°51531	0°21718	1°48016	84°041
27	0°87650	1°51088	0°21768	1°48007	84°546
28	0°86972	1°50637	0°21817	1°47999	85°048
29	0°86317	1°50179	0°21866	1°47991	85°546
30	0°85684	1°49714	0°21914	1°47984	86°039

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^s .48761.	From Mean Noon of January 1.	
	At Mean Midnight,						Days.	Day of the Year.
	Logarithms of							
	A	B	C	D				
1	-1.1025	+1.1785	+9.5938	+0.7386	^h 3 ^m 15 ^s 37.71	315	31	.0849
2	1.1107	1.1713	9.5967	0.7376	3 11 41.81	316	32	.0876
3	1.1187	1.1639	9.5995	0.7366	3 7 45.90	317	33	.0904
4	-1.1264	+1.1562	+9.6023	+0.7356	3 3 49.99	318	34	.0931
5	1.1338	1.1483	9.6050	0.7346	2 59 54.08	319	35	.0958
6	1.1410	1.1400	9.6077	0.7336	2 55 58.17	320	36	.0986
7	-1.1479	+1.1315	+9.6103	+0.7326	2 52 2.26	321	37	.1013
8	1.1545	1.1226	9.6129	0.7316	2 48 6.35	322	38	.1040
9	1.1610	1.1135	9.6154	0.7306	2 44 10.44	323	39	.1068
10	-1.1672	+1.1040	+9.6179	+0.7297	2 40 14.53	324	40	.1095
11	1.1731	1.0941	9.6204	0.7287	2 36 18.63	325	41	.1123
12	1.1789	1.0839	9.6228	0.7278	2 32 22.72	326	42	.1150
13	-1.1844	+1.0734	+9.6251	+0.7268	2 28 26.81	327	43	.1177
14	1.1898	1.0624	9.6274	0.7259	2 24 30.90	328	44	.1205
15	1.1949	1.0510	9.6296	0.7250	2 20 34.99	329	45	.1232
16	-1.1998	+1.0391	+9.6319	+0.7241	2 16 39.08	330	46	.1259
17	1.2046	1.0268	9.6341	0.7233	2 12 43.18	331	47	.1287
18	1.2091	1.0141	9.6362	0.7225	2 8 47.27	332	48	.1314
19	-1.2135	+1.0007	+9.6383	+0.7217	2 4 51.36	333	49	.1342
20	1.2177	0.9869	9.6404	0.7209	2 0 55.46	334	50	.1369
21	1.2218	0.9724	9.6424	0.7201	1 56 59.55	335	51	.1396
22	-1.2256	+0.9573	+9.6444	+0.7194	1 53 3.64	336	52	.1424
23	1.2293	0.9416	9.6464	0.7187	1 49 7.74	337	53	.1451
24	1.2328	0.9251	9.6483	0.7181	1 45 11.83	338	54	.1478
25	-1.2362	+0.9078	+9.6502	+0.7175	1 41 15.92	339	55	.1506
26	1.2394	0.8897	9.6521	0.7169	1 37 20.01	340	56	.1533
27	1.2424	0.8707	9.6539	0.7164	1 33 24.10	341	57	.1561
28	-1.2453	+0.8507	+9.6557	+0.7159	1 29 28.19	342	58	.1588
29	1.2480	0.8296	9.6575	0.7154	1 25 32.29	343	59	.1615
30	-1.2506	+0.8072	+9.6593	+0.7150	1 21 36.38	344	60	.1643

* Add .0011 if Fraction be required for the time t , see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Tues.	1	22 50 41.15	9.348	S. 7 21 49.4	57.12	1 5.38	12 28.88	0.508
Wed.	2	22 54 25.25	9.328	6 58 55.2	57.38	1 5.30	12 16.46	0.527
Thur.	3	22 58 8.89	9.309	6 35 55.0	57.62	1 5.23	12 3.60	0.545
Frid.	4	23 1 52.09	9.291	6 12 49.3	57.85	1 5.17	11 50.28	0.564
Sat.	5	23 5 34.86	9.274	5 49 38.3	58.06	1 5.10	11 36.53	0.581
Sun.	6	23 9 17.22	9.257	5 26 22.6	58.25	1 5.04	11 22.39	0.598
Mon.	7	23 12 59.18	9.240	5 3 2.6	58.42	1 4.98	11 7.83	0.615
Tues.	8	23 16 40.75	9.225	4 39 38.7	58.57	1 4.93	10 52.89	0.630
Wed.	9	23 20 21.96	9.210	4 16 11.2	58.71	1 4.88	10 37.59	0.645
Thur.	10	23 24 2.82	9.195	3 52 40.6	58.83	1 4.83	10 21.94	0.660
Frid.	11	23 27 43.34	9.182	3 29 7.3	58.94	1 4.78	10 5.94	0.673
Sat.	12	23 31 23.54	9.169	3 5 31.6	59.03	1 4.74	9 49.65	0.686
Sun.	13	23 35 3.45	9.157	2 41 53.9	59.10	1 4.70	9 33.04	0.698
Mon.	14	23 38 43.07	9.146	2 18 14.6	59.16	1 4.66	9 16.15	0.709
Tues.	15	23 42 22.44	9.135	1 54 34.1	59.20	1 4.63	8 59.02	0.719
Wed.	16	23 46 1.56	9.126	1 30 52.8	59.23	1 4.59	8 41.63	0.729
Thur.	17	23 49 40.47	9.117	1 7 10.9	59.25	1 4.56	8 24.04	0.738
Frid.	18	23 53 19.17	9.109	0 43 29.0	59.25	1 4.54	8 6.24	0.745
Sat.	19	23 56 57.69	9.102	S. 0 19 47.2	59.23	1 4.52	7 48.26	0.752
Sun.	20	0 0 36.07	9.096	N. 0 3 53.9	59.20	1 4.50	7 30.12	0.758
Mon.	21	0 4 14.31	9.091	0 27 34.2	59.15	1 4.48	7 11.86	0.763
Tues.	22	0 7 52.43	9.087	0 51 13.2	59.09	1 4.47	6 53.49	0.767
Wed.	23	0 11 30.49	9.084	1 14 50.7	59.02	1 4.46	6 35.05	0.770
Thur.	24	0 15 8.47	9.082	1 38 26.2	58.93	1 4.45	6 16.53	0.772
Frid.	25	0 18 46.41	9.081	2 1 59.4	58.83	1 4.45	5 57.96	0.773
Sat.	26	0 22 24.36	9.081	2 25 30.0	58.72	1 4.45	5 39.41	0.773
Sun.	27	0 26 2.30	9.082	2 48 57.8	58.59	1 4.45	5 20.86	0.772
Mon.	28	0 29 40.29	9.084	3 12 22.2	58.45	1 4.45	5 2.34	0.770
Tues.	29	0 33 18.34	9.087	3 35 43.2	58.29	1 4.46	4 43.88	0.767
Wed.	30	0 36 56.46	9.090	3 59 0.1	58.12	1 4.47	4 25.51	0.763
Thur.	31	0 40 34.68	9.095	4 22 12.8	57.93	1 4.48	4 7.23	0.759
Frid.	32	0 44 13.03		N. 4 45 20.8		1 4.50	3 49.07	

* Mean Time of the Semidiameter passing may be found by subtracting 0'.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subtracted from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Tues.	1	22 50 39.20	S. 7 22 1.3	16 10.0	12 28.99	22 38 10.21
Wed.	2	22 54 23.34	6 59 7.0	16 9.8	12 16.57	22 42.6.77
Thur.	3	22 58 7.02	6 36 6.6	16 9.5	12 3.70	22 46 3.32
Frid.	4	23 1 50.26	6 13 0.7	16 9.2	11 50.39	22 49 59.87
Sat.	5	23 5 33.07	5 49 49.6	16 9.0	11 36.64	22 53 56.43
Sun.	6	23 9 15.47	5 26 33.7	16 8.7	11 22.49	22 57 52.98
Mon.	7	23 12 57.47	5 3 13.5	16 8.5	11 7.94	23 1 49.53
Tues.	8	23 16 39.08	4 39 49.3	16 8.2	10 53.00	23 5 46.08
Wed.	9	23 20 20.33	4 16 21.6	16 7.9	10 37.70	23 9 42.63
Thur.	10	23 24 1.23	3 52 50.8	16 7.7	10 22.05	23 13 39.18
Frid.	11	23 27 41.79	3 29 17.2	16 7.4	10 6.05	23 17 35.74
Sat.	12	23 31 22.04	3 5 41.2	16 7.2	9 49.75	23 21 32.29
Sun.	13	23 35 1.99	2 42 3.3	16 6.9	9 33.15	23 25 28.84
Mon.	14	23 38 41.66	2 18 23.8	16 6.6	9 16.26	23 29 25.40
Tues.	15	23 42 21.07	1 54 43.0	16 6.4	8 59.12	23 33 21.95
Wed.	16	23 46 0.24	1 31 1.4	16 6.1	8 41.74	23 37 18.50
Thur.	17	23 49 39.19	1 7 19.2	16 5.8	8 24.14	23 41 15.05
Frid.	18	23 53 17.94	0 43 37.0	16 5.6	8 6.34	23 45 11.60
Sat.	19	23 56 56.51	S. 0 19 54.9	16 5.3	7 48.36	23 49 8.15
Sun.	20	0 0 34.93	N. 0 3 46.5	16 5.1	7 30.22	23 53 4.71
Mon.	21	0 4 13.22	0 27 27.1	16 4.8	7 11.96	23 57 1.26
Tues.	22	0 7 51.39	0 51 6.5	16 4.5	6 53.58	0 0 57.81
Wed.	23	0 11 29.49	1 14 44.2	16 4.2	6 35.13	0 4 54.36
Thur.	24	0 15 7.52	1 38 20.0	16 3.9	6 16.61	0 8 50.91
Frid.	25	0 18 45.51	2 1 53.5	16 3.7	5 58.04	0 12 47.47
Sat.	26	0 22 23.50	2 25 24.5	16 3.4	5 39.48	0 16 44.02
Sun.	27	0 26 1.49	2 48 52.6	16 3.1	5 20.93	0 20 40.57
Mon.	28	0 29 39.53	3 12 17.3	16 2.8	5 2.41	0 24 37.12
Tues.	29	0 33 17.62	3 35 38.6	16 2.5	4 43.94	0 28 33.68
Wed.	30	0 36 55.79	3 58 55.8	16 2.3	4 25.56	0 32 30.23
Thur.	31	0 40 34.06	4 22 8.8	16 2.0	4 7.28	0 36 26.78
Frid.	32	0 44 12.45	N. 4 45 17.1	16 1.7	3 49.12	0 40 23.33

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	341 12 26.3	N. 0° 14'	9.9963197	15 47.6	15 54.1	57 51.7	58 15.7
2	342 12 34.1	0° 26'	9.9964333	16 0.8	16 7.4	58 40.0	59 4.1
3	343 12 40.4	0° 36'	9.9965478	16 13.8	16 19.8	59 27.6	59 49.9
4	344 12 45.2	0° 44'	9.9966629	16 25.4	16 30.4	60 10.4	60 28.5
5	345 12 48.3	0° 48'	9.9967785	16 34.5	16 37.6	60 43.6	60 55.1
6	346 12 49.6	0° 50'	9.9968945	16 39.7	16 40.5	61 2.6	61 5.6
7	347 12 49.1	0° 48'	9.9970108	16 40.0	16 38.3	61 4.0	60 57.7
8	348 12 46.7	0° 42'	9.9971272	16 35.4	16 31.3	60 46.9	60 31.8
9	349 12 42.3	0° 33'	9.9972438	16 26.1	16 20.1	60 12.9	59 50.7
10	350 12 35.9	0° 21'	9.9973605	16 13.3	16 6.0	59 25.9	58 59.1
11	351 12 27.4	N. 0° 08'	9.9974773	15 58.3	15 50.5	58 31.0	58 2.5
12	352 12 16.8	S. 0° 06'	9.9975943	15 42.7	15 35.1	57 33.9	57 5.9
13	353 12 4.0	0° 20'	9.9977117	15 27.8	15 20.8	56 39.1	56 13.7
14	354 11 48.9	0° 32'	9.9978295	15 14.4	15 8.6	55 50.1	55 28.7
15	355 11 31.5	0° 43'	9.9979478	15 3.3	14 58.7	55 9.5	54 52.7
16	356 11 11.9	0° 53'	9.9980667	14 54.8	14 51.6	54 38.3	54 26.4
17	357 10 50.1	0° 60'	9.9981862	14 49.0	14 47.0	54 17.0	54 10.0
18	358 10 25.9	0° 66'	9.9983064	14 45.8	14 45.1	54 5.3	54 2.8
19	359 9 59.5	0° 69'	9.9984274	14 45.0	14 45.4	54 2.4	54 4.0
20	0 9 30.8	0° 71'	9.9985492	14 46.4	14 47.7	54 7.4	54 12.4
21	1 8 59.9	0° 68'	9.9986718	14 49.5	14 51.7	54 18.9	54 26.8
22	2 8 26.9	0° 65'	9.9987953	14 54.1	14 56.8	54 35.8	54 45.9
23	3 7 51.8	0° 59'	9.9989196	14 59.9	15 3.1	54 57.0	55 8.8
24	4 7 14.6	0° 51'	9.9990446	15 6.6	15 10.2	55 21.4	55 34.6
25	5 6 35.5	0° 41'	9.9991704	15 13.9	15 17.8	55 48.3	56 2.7
26	6 5 54.4	0° 30'	9.9992970	15 21.9	15 26.0	56 17.5	56 32.8
27	7 5 11.5	0° 17'	9.9994242	15 30.4	15 34.8	56 48.6	57 4.9
28	8 4 26.8	S. 0° 05'	9.9995518	15 39.3	15 44.0	57 21.5	57 38.5
29	9 3 40.3	N. 0° 07'	9.9996799	15 48.7	15 53.4	57 55.7	58 13.2
30	10 2 52.1	0° 17'	9.9998082	15 58.2	16 2.9	58 30.5	58 47.7
31	11 2 2.2	0° 26'	9.9999365	16 7.4	16 11.8	59 4.4	59 20.3
32	12 1 10.5	N. 0° 31'	0.0000647	16 15.8	16 19.4	59 35.1	59 48.4

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.										
		Longitude.		Latitude.		Age.		Meridian			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.				
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	d		h	m		
Tues.	1	250 35 20.6	257 21 22.5	N.1 41 26.6	N.2 14 33.2	22.7		18	41.0		
Wed.	2	264 13 26.4	271 11 44.2	2 46 12.4	3 15 51.5	23.7		19	38.8		
Thur.	3	278 16 20.1	285 27 8.6	3 42 57.1	4 6 55.6	24.7		20	37.2		
Frid.	4	292 43 52.9	300 6 4.6	4 27 14.1	4 43 22.3	25.7		21	35.2		
Sat.	5	307 33 2.1	315 3 51.7	4 54 53.4	5 1 26.3	26.7		22	32.1		
Sun.	6	322 37 28.6	330 12 39.2	5 2 46.4	4 58 47.6	27.7		23	27.7		
Mon.	7	337 48 4.1	345 22 22.1	4 49 32.4	4 35 12.7	28.7		6			
Tues.	8	352 54 13.1	0 22 23.0	4 16 8.7	3 52 48.3	0.3		0	22.2		
Wed.	9	7 45 45.8	15 3 26.4	3 25 45.0	2 55 36.8	1.3		1	16.1		
Thur.	10	22 14 42.5	29 19 4.7	2 23 3.4	1 48 44.9	2.3		2	9.6		
Frid.	11	36 16 16.3	43 6 12.9	1 13 20.2	N.0 37 25.8	3.3		3	3.1		
Sat.	12	49 49 0.4	56 24 54.1	N.0 1 35.0	S.0 33 42.4	4.3		3	56.3		
Sun.	13	62 54 16.6	69 17 36.4	S.1 7 59.9	1 40 55.1	5.3		4	49.0		
Mon.	14	75 35 26.1	81 48 21.5	2 12 8.3	2 41 23.0	6.3		5	40.7		
Tues.	15	87 56 59.7	94 1 58.4	3 8 24.5	3 33 1.1	7.3		6	30.9		
Wed.	16	100 3 55.7	106 3 28.3	3 55 1.9	4 14 18.2	8.3		7	19.3		
Thur.	17	112 1 11.7	117 57 39.2	4 30 41.7	4 44 5.8	9.3		8	5.9		
Frid.	18	123 53 22.2	129 48 49.5	4 54 24.4	5 1 32.7	10.3		8	50.7		
Sat.	19	135 44 27.2	141 40 38.4	5 5 26.5	5 6 3.1	11.3		9	34.2		
Sun.	20	147 37 43.6	153 36 0.6	5 3 20.5	4 57 18.5	12.3		10	16.9		
Mon.	21	159 35 44.5	165 37 8.0	4 47 58.4	4 35 23.1	13.3		10	59.2		
Tues.	22	171 40 22.1	177 45 35.5	4 19 37.4	4 6 48.4	14.3		11	41.9		
Wed.	23	183 52 56.1	190 2 30.3	3 39 5.0	3 14 38.7	15.3		12	25.7		
Thur.	24	196 14 24.9	202 28 46.0	2 47 43.3	2 18 34.3	16.3		13	11.0		
Frid.	25	208 45 40.2	215 5 14.9	1 47 30.1	1 14 50.7	17.3		13	58.6		
Sat.	26	221 27 38.7	227 53 1.0	S.0 40 58.5	S.0 6 16.8	18.3		14	48.6		
Sun.	27	234 21 32.9	240 53 25.9	N.0 28 48.9	N.1 3 51.8	19.3		15	41.2		
Mon.	28	247 28 52.6	254 8 6.0	1 38 24.1	2 11 57.3	20.3		16	35.9		
Tues.	29	260 51 18.3	267 38 40.7	2 44 2.0	3 14 8.6	21.3		17	32.0		
Wed.	30	274 30 22.2	281 26 28.6	3 41 47.6	4 6 29.8	22.3		18	28.5		
Thur.	31	288 27 1.0	295 31 55.2	4 27 47.0	4 45 13.3	23.3		19	24.6		
Frid.	32	302 41 0.2	309 53 58.0	N.4 58 24.8	N.5 7 1.2	24.3		20	19.7		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 1.				THURSDAY 3.			
0	^h 16 ^m 36 ^s 58.83	S. 20 22 34.0	19.01	0	^h 18 ^m 35 ^s 2.45	S. 19 29 17.6	43.59
1	16 39 22.47	20 24 28.1	17.80	1	18 37 32.57	19 24 56.0	44.93
2	16 41 46.34	20 26 14.9	16.59	2	18 40 2.71	19 20 26.5	46.26
3	16 44 10.42	20 27 54.4	15.37	3	18 42 32.89	19 15 48.9	47.58
4	16 46 34.72	20 29 26.7	14.15	4	18 45 3.09	19 11 3.4	48.90
5	16 48 59.23	20 30 51.5	12.92	5	18 47 33.31	19 6 10.0	50.23
6	16 51 23.96	20 32 9.0	11.68	6	18 50 3.54	19 1 8.6	51.55
7	16 53 48.88	20 33 19.1	10.43	7	18 52 33.79	18 55 59.3	52.86
8	16 56 14.01	20 34 21.6	9.18	8	18 55 4.05	18 50 42.1	54.17
9	16 58 39.34	20 35 16.7	7.93	9	18 57 34.31	18 45 17.1	55.48
10	17 1 4.87	20 36 4.3	6.67	10	19 0 4.57	18 39 44.2	56.78
11	17 3 30.59	20 36 44.3	5.40	11	19 2 34.83	18 34 3.5	58.08
12	17 5 56.49	20 37 16.6	4.13	12	19 5 5.09	18 28 15.0	59.37
13	17 8 22.58	20 37 41.4	2.85	13	19 7 35.33	18 22 18.8	60.66
14	17 10 48.86	20 37 58.5	1.57	14	19 10 5.55	18 16 14.8	61.95
15	17 13 15.31	20 38 7.9	0.28	15	19 12 35.76	18 10 3.1	63.22
16	17 15 41.94	20 38 9.6	1.01	16	19 15 5.94	18 3 43.8	64.49
17	17 18 8.74	20 38 3.5	2.30	17	19 17 36.10	17 57 16.8	65.76
18	17 20 35.71	20 37 49.7	3.60	18	19 20 6.23	17 50 42.3	67.02
19	17 23 2.84	20 37 28.1	4.90	19	19 22 36.32	17 44 0.1	68.27
20	17 25 30.14	20 36 58.6	6.21	20	19 25 6.38	17 37 10.5	69.52
21	17 27 57.58	20 36 21.4	7.52	21	19 27 36.40	17 30 13.4	70.77
22	17 30 25.18	20 35 36.2	8.83	22	19 30 6.37	17 23 8.8	72.00
23	17 32 52.93	S. 20 34 43.2	10.15	23	19 32 36.29	S. 17 15 56.8	73.22
WEDNESDAY 2.				FRIDAY 4.			
0	17 35 20.82	S. 20 33 42.3	11.47	0	19 35 6.17	S. 17 8 37.5	74.45
1	17 37 48.85	20 32 33.5	12.80	1	19 37 35.99	17 1 10.8	75.66
2	17 40 17.02	20 31 16.7	14.13	2	19 40 5.76	16 53 36.9	76.86
3	17 42 45.32	20 29 51.9	15.45	3	19 42 35.47	16 45 55.7	78.05
4	17 45 13.75	20 28 19.2	16.78	4	19 45 5.11	16 38 7.4	79.24
5	17 47 42.30	20 26 38.5	18.12	5	19 47 34.69	16 30 11.9	80.42
6	17 50 10.97	20 24 49.8	19.45	6	19 50 4.20	16 22 9.4	81.59
7	17 52 39.75	20 22 53.1	20.79	7	19 52 33.64	16 13 59.9	82.75
8	17 55 8.64	20 20 48.4	22.13	8	19 55 3.01	16 5 43.4	83.90
9	17 57 37.64	20 18 35.6	23.47	9	19 57 32.30	15 57 20.0	85.04
10	18 0 6.74	20 16 14.8	24.81	10	20 0 1.51	15 48 49.8	86.17
11	18 2 35.94	20 13 46.0	26.15	11	20 2 30.64	15 40 12.8	87.29
12	18 5 5.23	20 11 9.1	27.50	12	20 4 59.69	15 31 29.1	88.40
13	18 7 34.61	20 8 24.1	28.84	13	20 7 28.65	15 22 38.7	89.50
14	18 10 4.08	20 5 31.1	30.18	14	20 9 57.53	15 13 41.7	90.59
15	18 12 33.63	20 2 30.0	31.53	15	20 12 26.31	15 4 38.1	91.67
16	18 15 3.25	19 59 20.9	32.88	16	20 14 55.00	14 55 28.1	92.74
17	18 17 32.94	19 56 3.6	34.22	17	20 17 23.59	14 46 11.6	93.80
18	18 20 2.70	19 52 38.3	35.56	18	20 19 52.09	14 36 48.8	94.85
19	18 22 32.53	19 49 5.0	36.90	19	20 22 20.49	14 27 19.7	95.88
20	18 25 2.41	19 45 23.6	38.24	20	20 24 48.79	14 17 44.4	96.91
21	18 27 32.35	19 41 34.1	39.58	21	20 27 16.99	14 8 2.9	97.92
22	18 30 2.34	19 37 36.6	40.92	22	20 29 45.08	13 58 15.4	98.92
23	18 32 32.38	19 33 31.1	42.26	23	20 32 13.07	13 48 21.9	99.91
24	18 35 2.45	S. 19 29 17.6		24	20 34 40.95	S. 13 38 22.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 5.				MONDAY 7.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	20 34 40.95	S. 13 38 22.4	100.88	0	22 30 41.95	S. 4 10 4.7	130.59
1	20 37 8.72	13 28 17.1	101.85	1	22 33 4.19	3 57 1.2	130.81
2	20 39 36.39	13 18 6.0	102.80	2	22 35 26.34	3 43 56.3	131.02
3	20 42 3.94	13 7 49.2	103.74	3	22 37 48.38	3 30 50.2	131.21
4	20 44 31.38	12 57 26.7	104.66	4	22 40 10.33	3 17 42.9	131.39
5	20 46 58.70	12 46 58.7	105.58	5	22 42 32.19	3 4 34.5	131.55
6	20 49 25.91	12 36 25.3	106.47	6	22 44 53.95	2 51 25.2	131.69
7	20 51 53.01	12 25 46.4	107.36	7	22 47 15.62	2 38 15.1	131.82
8	20 54 19.99	12 15 2.3	108.23	8	22 49 37.20	2 25 4.2	131.93
9	20 56 46.86	12 4 12.9	109.09	9	22 51 58.69	2 11 52.6	132.02
10	20 59 13.61	11 53 18.4	109.93	10	22 54 20.09	1 58 40.5	132.10
11	21 1 40.24	11 42 18.8	110.75	11	22 56 41.41	1 45 27.9	132.16
12	21 4 6.75	11 31 14.3	111.57	12	22 59 2.64	1 32 15.0	132.20
13	21 6 33.14	11 20 4.9	112.37	13	23 1 23.79	1 19 1.8	132.22
14	21 8 59.41	11 8 50.6	113.16	14	23 3 44.85	1 5 48.5	132.22
15	21 11 25.56	10 57 31.7	113.93	15	23 6 5.84	0 52 35.2	132.22
16	21 13 51.59	10 46 8.1	114.68	16	23 8 26.75	0 39 21.9	132.20
17	21 16 17.50	10 34 40.0	115.43	17	23 10 47.58	0 26 8.7	132.16
18	21 18 43.28	10 23 7.4	116.16	18	23 13 8.33	S. 0 12 55.8	132.10
19	21 21 8.95	10 11 30.4	116.87	19	23 15 29.02	N. 0 0 16.8	132.03
20	21 23 34.49	9 59 49.2	117.57	20	23 17 49.63	0 13 29.0	131.94
21	21 25 59.91	9 48 3.8	118.25	21	23 20 10.17	0 26 40.7	131.84
22	21 28 25.21	9 36 14.3	118.91	22	23 22 30.64	0 39 51.7	131.72
23	21 30 50.39	S. 9 24 20.8	119.56	23	23 24 51.05	N. 0 53 2.0	131.58
SUNDAY 6.				TUESDAY 8.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	21 33 15.45	S. 9 12 23.5	120.20	0	23 27 11.39	N. 1 6 11.5	131.43
1	21 35 40.39	9 0 22.3	120.82	1	23 29 31.67	1 19 20.1	131.26
2	21 38 5.21	8 48 17.4	121.42	2	23 31 51.88	1 32 27.6	131.07
3	21 40 29.90	8 36 8.8	122.01	3	23 34 12.04	1 45 34.0	130.87
4	21 42 54.48	8 23 56.7	122.58	4	23 36 32.13	1 58 39.3	130.66
5	21 45 18.94	8 11 41.2	123.14	5	23 38 52.17	2 11 43.2	130.43
6	21 47 43.28	7 59 22.4	123.68	6	23 41 12.15	2 24 45.8	130.18
7	21 50 7.50	7 47 0.3	124.20	7	23 43 32.08	2 37 46.8	129.92
8	21 52 31.60	7 34 35.1	124.71	8	23 45 51.95	2 50 46.4	129.64
9	21 54 55.59	7 22 6.8	125.20	9	23 48 11.78	3 3 44.2	129.35
10	21 57 19.46	7 9 35.6	125.68	10	23 50 31.55	3 16 40.3	129.04
11	21 59 43.21	6 57 1.5	126.14	11	23 52 51.27	3 29 34.6	128.72
12	22 2 6.85	6 44 24.8	126.58	12	23 55 10.95	3 42 26.9	128.38
13	22 4 30.38	6 31 45.4	127.00	13	23 57 30.58	3 55 17.2	128.03
14	22 6 53.79	6 19 3.4	127.41	14	23 59 50.17	4 8 5.3	127.66
15	22 9 17.09	6 6 18.9	127.80	15	0 2 9.72	4 20 51.3	127.28
16	22 11 40.28	5 53 32.1	128.18	16	0 4 29.23	4 33 35.0	126.88
17	22 14 3.36	5 40 43.0	128.54	17	0 6 48.69	4 46 16.3	126.47
18	22 16 26.33	5 27 51.8	128.88	18	0 9 8.11	4 58 55.1	126.05
19	22 18 49.20	5 14 58.5	129.21	19	0 11 27.50	5 11 31.4	125.61
20	22 21 11.96	5 2 3.3	129.52	20	0 13 46.85	5 24 5.1	125.16
21	22 23 34.61	4 49 6.2	129.81	21	0 16 6.17	5 36 36.1	124.69
22	22 25 57.16	4 36 7.3	130.09	22	0 18 25.46	5 49 4.2	124.22
23	22 28 19.60	4 23 6.8	130.35	23	0 20 44.71	6 1 29.5	123.73
24	22 30 41.95	S. 4 10 4.7		24	0 23 3.94	N. 6 13 51.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
WEDNESDAY 9.				FRIDAY 11.			
0	^h 0 ^m 23 ^s 3.94	N. 6 13 51.9	123.22	0	^h 2 14 ^m 7.13	N. 14 46 24.1	85.75
1	0 25 23.14	6 26 11.2	122.70	1	2 16 25.67	14 54 58.6	84.76
2	0 27 42.30	6 38 27.4	122.16	2	2 18 44.20	15 3 27.1	83.76
3	0 30 1.44	6 50 40.3	121.61	3	2 21 2.71	15 11 49.7	82.75
4	0 32 20.56	7 2 50.0	121.05	4	2 23 21.20	15 20 6.2	81.74
5	0 34 39.65	7 14 56.3	120.48	5	2 25 39.68	15 28 16.7	80.73
6	0 36 58.72	7 26 59.2	119.90	6	2 27 58.14	15 36 21.0	79.71
7	0 39 17.77	7 38 58.6	119.30	7	2 30 16.58	15 44 19.2	78.68
8	0 41 36.79	7 50 54.4	118.69	8	2 32 35.00	15 52 11.3	77.65
9	0 43 55.79	8 2 46.5	118.07	9	2 34 53.40	15 59 57.2	76.61
10	0 46 14.78	8 14 34.9	117.43	10	2 37 11.78	16 7 36.8	75.57
11	0 48 33.74	8 26 19.5	116.78	11	2 39 30.14	16 15 10.2	74.52
12	0 50 52.69	8 38 0.2	116.12	12	2 41 48.47	16 22 37.4	73.47
13	0 53 11.62	8 49 36.9	115.45	13	2 44 6.78	16 29 58.2	72.42
14	0 55 30.54	9 1 9.7	114.77	14	2 46 25.05	16 37 12.7	71.36
15	0 57 49.44	9 12 38.3	114.07	15	2 48 43.30	16 44 20.9	70.30
16	1 0 8.32	9 24 2.7	113.37	16	2 51 1.53	16 51 22.6	69.23
17	1 2 27.19	9 35 22.9	112.65	17	2 53 19.72	16 58 18.0	68.16
18	1 4 46.05	9 46 38.9	111.93	18	2 55 37.88	17 5 7.0	67.08
19	1 7 4.90	9 57 50.4	111.19	19	2 57 56.00	17 11 49.5	66.00
20	1 9 23.73	10 8 57.6	110.45	20	3 0 14.10	17 18 25.5	64.92
21	1 11 42.56	10 20 0.3	109.69	21	3 2 32.15	17 24 55.0	63.84
22	1 14 1.37	10 30 58.4	108.92	22	3 4 50.17	17 31 18.1	62.75
23	1 16 20.17	N. 10 41 51.9	108.14	23	3 7 8.16	N. 17 37 34.6	61.66
THURSDAY 10.				SATURDAY 12.			
0	1 18 38.95	N. 10 52 40.7	107.35	0	3 9 26.10	N. 17 43 44.5	60.57
1	1 20 57.73	11 3 24.8	106.55	1	3 11 44.00	17 49 47.9	59.47
2	1 23 16.50	11 14 4.1	105.74	2	3 14 1.86	17 55 44.7	58.37
3	1 25 35.26	11 24 38.5	104.92	3	3 16 19.67	18 1 34.9	57.27
4	1 27 54.01	11 35 8.0	104.09	4	3 18 37.44	18 7 18.6	56.17
5	1 30 12.75	11 45 32.5	103.25	5	3 20 55.16	18 12 55.6	55.06
6	1 32 31.48	11 55 52.0	102.40	6	3 23 12.83	18 18 26.0	53.95
7	1 34 50.21	12 6 6.4	101.55	7	3 25 30.44	18 23 49.7	52.84
8	1 37 8.93	12 16 15.7	100.68	8	3 27 48.01	18 29 6.8	51.73
9	1 39 27.63	12 26 19.8	99.80	9	3 30 5.52	18 34 17.2	50.62
10	1 41 46.33	12 36 18.6	98.92	10	3 32 22.97	18 39 20.9	49.51
11	1 44 5.03	12 46 12.1	98.03	11	3 34 40.36	18 44 18.0	48.40
12	1 46 23.71	12 56 0.2	97.13	12	3 36 57.69	18 49 8.4	47.28
13	1 48 42.39	13 5 43.0	96.22	13	3 39 14.96	18 53 52.1	46.17
14	1 51 1.05	13 15 20.3	95.31	14	3 41 32.17	18 58 29.1	45.05
15	1 53 19.71	13 24 52.2	94.38	15	3 43 49.31	19 2 59.4	43.93
16	1 55 38.36	13 34 18.5	93.45	16	3 46 6.38	19 7 23.0	42.82
17	1 57 56.99	13 43 39.2	92.52	17	3 48 23.39	19 11 39.9	41.70
18	2 0 15.62	13 52 54.3	91.57	18	3 50 40.32	19 15 50.1	40.58
19	2 2 34.23	14 2 3.7	90.62	19	3 52 57.18	19 19 53.6	39.46
20	2 4 52.84	14 11 7.4	89.66	20	3 55 13.96	19 23 50.3	38.34
21	2 7 11.43	14 20 5.3	88.69	21	3 57 30.67	19 27 40.3	37.22
22	2 9 30.01	14 28 57.5	87.72	22	3 59 47.29	19 31 23.7	36.10
23	2 11 48.58	14 37 43.8	86.74	23	4 2 3.83	19 35 0.3	34.98
24	2 14 7.13	N. 14 46 24.1		24	4 4 20.29	N. 19 38 30.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 13.				TUESDAY 15.			
h m s	° ' "	° ' "	"	h m s	° ' "	° ' "	"
0	4 20.29	N.19 38 30.2	33.86	0	5 51 16.17	N.20 17 59.1	17.40
1	4 6 36.67	19 41 53.4	32.74	1	5 53 26.34	20 16 14.7	18.38
2	4 8 52.96	19 45 9.8	31.62	2	5 55 36.35	20 14 24.4	19.36
3	4 11 9.17	19 48 19.6	30.51	3	5 57 46.20	20 12 28.2	20.34
4	4 13 25.28	19 51 22.6	29.39	4	5 59 55.87	20 10 26.2	21.31
5	4 15 41.30	19 54 19.0	28.28	5	6 2 5.38	20 8 18.3	22.28
6	4 17 57.22	19 57 8.7	27.16	6	6 4 14.72	20 6 4.7	23.24
7	4 20 13.05	19 59 51.6	26.05	7	6 6 23.88	20 3 45.2	24.19
8	4 22 28.78	20 2 27.9	24.94	8	6 8 32.88	20 1 20.1	25.14
9	4 24 44.41	20 4 57.6	23.83	9	6 10 41.70	19 58 49.2	26.09
10	4 26 59.93	20 7 20.6	22.72	10	6 12 50.35	19 56 12.7	27.03
11	4 29 15.35	20 9 36.9	21.62	11	6 14 58.83	19 53 30.5	27.97
12	4 31 30.67	20 11 46.6	20.51	12	6 17 7.13	19 50 42.7	28.90
13	4 33 45.88	20 13 49.7	19.41	13	6 19 15.26	19 47 49.3	29.83
14	4 36 0.97	20 15 46.1	18.31	14	6 21 23.22	19 44 50.3	30.75
15	4 38 15.96	20 17 36.0	17.21	15	6 23 31.00	19 41 45.8	31.67
16	4 40 30.83	20 19 19.2	16.11	16	6 25 38.60	19 38 35.8	32.58
17	4 42 45.58	20 20 55.9	15.01	17	6 27 46.03	19 35 20.4	33.49
18	4 45 0.22	20 22 25.9	13.92	18	6 29 53.29	19 31 59.5	34.39
19	4 47 14.73	20 23 49.5	12.83	19	6 32 0.36	19 28 33.1	35.28
20	4 49 29.13	20 25 6.4	11.74	20	6 34 7.25	19 25 1.4	36.17
21	4 51 43.40	20 26 16.9	10.65	21	6 36 13.97	19 21 24.4	37.06
22	4 53 57.55	20 27 20.8	9.57	22	6 38 20.51	19 17 42.0	37.95
23	4 56 11.58	N.20 28 18.3	8.49	23	6 40 26.87	N.19 13 54.3	38.83
MONDAY 14.				WEDNESDAY 16.			
h m s	° ' "	° ' "	"	h m s	° ' "	° ' "	"
0	4 58 25.47	N.20 29 9.2	7.41	0	6 42 33.05	N.19 10 1.4	39.70
1	5 0 39.23	20 29 53.7	6.34	1	6 44 39.05	19 6 3.2	40.56
2	5 2 52.87	20 30 31.7	5.27	2	6 46 44.88	19 1 59.9	41.42
3	5 5 6.37	20 31 3.3	4.20	3	6 48 50.52	18 57 51.3	42.28
4	5 7 19.73	20 31 28.5	3.13	4	6 50 55.99	18 53 37.7	43.13
5	5 9 32.96	20 31 47.3	2.07	5	6 53 1.27	18 49 18.9	43.97
6	5 11 46.04	20 31 59.8	1.01	6	6 55 6.38	18 44 55.1	44.81
7	5 13 58.99	20 32 5.8	0.04	7	6 57 11.31	18 40 26.3	45.64
8	5 16 11.79	20 32 5.6	1.09	8	6 59 16.06	18 35 52.4	46.47
9	5 18 24.46	20 31 59.0	2.14	9	7 1 20.63	18 31 13.6	47.29
10	5 20 36.97	20 31 46.2	3.18	10	7 3 25.02	18 26 29.9	48.11
11	5 22 49.34	20 31 27.1	4.22	11	7 5 29.23	18 21 41.2	48.92
12	5 25 1.56	20 31 1.8	5.26	12	7 7 33.27	18 16 47.7	49.73
13	5 27 13.63	20 30 30.2	6.29	13	7 9 37.13	18 11 49.3	50.53
14	5 29 25.56	20 29 52.5	7.32	14	7 11 40.81	18 6 46.2	51.33
15	5 31 37.33	20 29 8.5	8.35	15	7 13 44.31	18 1 38.2	52.12
16	5 33 48.94	20 28 18.4	9.37	16	7 15 47.64	17 56 25.5	52.90
17	5 36 0.40	20 27 22.2	10.38	17	7 17 50.79	17 51 8.1	53.67
18	5 38 11.71	20 26 19.9	11.40	18	7 19 53.76	17 45 46.1	54.45
19	5 40 22.85	20 25 11.5	12.41	19	7 21 56.56	17 40 19.4	55.22
20	5 42 33.84	20 23 57.0	13.42	20	7 23 59.19	17 34 48.1	55.98
21	5 44 44.67	20 22 36.5	14.42	21	7 26 1.64	17 29 12.2	56.74
22	5 46 55.33	20 21 10.0	15.42	22	7 28 3.92	17 23 31.8	57.49
23	5 49 5.84	20 19 37.5	16.42	23	7 30 6.02	17 17 46.8	58.23
24	5 51 16.17	N.20 17 59.1		24	7 32 7.96	N.17 11 57.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 17.				SATURDAY 19.			
0	h m s 7 32 7.96	N. 17 11 57.4	58.98	0	h m s 9 6 39.96	N. 11 15 42.9	87.89
1	7 34 9.72	17 6 3.5	59.71	1	9 8 34.95	11 6 55.6	88.35
2	7 36 11.31	17 0 5.3	60.44	2	9 10 29.84	10 58 5.4	88.81
3	7 38 12.73	16 54 2.6	61.16	3	9 12 24.64	10 49 12.6	89.26
4	7 40 13.98	16 47 55.6	61.88	4	9 14 19.33	10 40 17.0	89.71
5	7 42 15.07	16 41 44.3	62.60	5	9 16 13.93	10 31 18.7	90.15
6	7 44 15.98	16 35 28.7	63.30	6	9 18 8.44	10 22 17.8	90.58
7	7 46 16.73	16 29 8.9	64.00	7	9 20 2.86	10 13 14.3	91.01
8	7 48 17.32	16 22 44.9	64.70	8	9 21 57.19	10 4 8.3	91.43
9	7 50 17.74	16 16 16.7	65.39	9	9 23 51.44	9 54 59.6	91.85
10	7 52 18.00	16 9 44.4	66.07	10	9 25 45.60	9 45 48.5	92.26
11	7 54 18.10	16 3 7.9	66.73	11	9 27 39.68	9 36 34.9	92.67
12	7 56 18.03	15 56 27.4	67.42	12	9 29 33.68	9 27 19.0	93.07
13	7 58 17.80	15 49 42.9	68.09	13	9 31 27.60	9 18 0.6	93.47
14	8 0 17.42	15 42 54.3	68.75	14	9 33 21.45	9 8 39.8	93.85
15	8 2 16.88	15 36 1.8	69.41	15	9 35 15.22	8 59 16.7	94.23
16	8 4 16.18	15 29 5.4	70.06	16	9 37 8.92	8 49 51.3	94.61
17	8 6 15.33	15 22 5.0	70.70	17	9 39 2.56	8 40 23.6	94.98
18	8 8 14.32	15 15 0.8	71.34	18	9 40 56.13	8 30 53.7	95.34
19	8 10 13.16	15 7 52.7	71.98	19	9 42 49.63	8 21 21.7	95.70
20	8 12 11.85	15 0 40.9	72.60	20	9 44 43.07	8 11 47.4	96.06
21	8 14 10.39	14 53 25.2	73.23	21	9 46 36.45	8 2 11.1	96.40
22	8 16 8.78	14 46 5.9	73.84	22	9 48 29.77	7 52 32.7	96.74
23	8 18 7.03	N. 14 38 42.8	74.45	23	9 50 23.04	N. 7 42 52.2	97.08
FRIDAY 18.				SUNDAY 20.			
0	8 20 5.13	N. 14 31 16.1	75.06	0	9 52 16.25	N. 7 33 9.7	97.41
1	8 22 3.08	14 23 45.7	75.66	1	9 54 9.41	7 23 25.2	97.74
2	8 24 0.90	14 16 11.8	76.25	2	9 56 2.53	7 13 38.8	98.06
3	8 25 58.57	14 8 34.2	76.84	3	9 57 55.60	7 3 50.5	98.37
4	8 27 56.10	14 0 53.2	77.43	4	9 59 48.63	6 54 0.3	98.67
5	8 29 53.49	13 53 8.6	78.00	5	10 1 41.61	6 44 8.2	98.97
6	8 31 50.75	13 45 20.6	78.58	6	10 3 34.56	6 34 14.4	99.27
7	8 33 47.87	13 37 29.1	79.14	7	10 5 27.47	6 24 18.8	99.55
8	8 35 44.86	13 29 34.3	79.70	8	10 7 20.34	6 14 21.5	99.83
9	8 37 41.71	13 21 36.1	80.26	9	10 9 13.19	6 4 22.5	100.11
10	8 39 38.44	13 13 34.5	80.81	10	10 11 6.00	5 54 21.8	100.38
11	8 41 35.04	13 5 29.7	81.35	11	10 12 58.78	5 44 19.5	100.65
12	8 43 31.51	12 57 21.6	81.88	12	10 14 51.54	5 34 15.7	100.91
13	8 45 27.86	12 49 10.3	82.42	13	10 16 44.28	5 24 10.3	101.16
14	8 47 24.08	12 40 55.8	82.94	14	10 18 37.00	5 14 3.3	101.40
15	8 49 20.19	12 32 38.2	83.46	15	10 20 29.70	5 3 54.9	101.64
16	8 51 16.17	12 24 17.4	83.98	16	10 22 22.38	4 53 45.1	101.87
17	8 53 12.03	12 15 53.5	84.48	17	10 24 15.06	4 43 33.8	102.10
18	8 55 7.78	12 7 26.6	84.98	18	10 26 7.72	4 33 21.2	102.32
19	8 57 3.42	11 58 56.7	85.48	19	10 28 0.37	4 23 7.3	102.53
20	8 58 58.94	11 50 23.8	85.98	20	10 29 53.02	4 12 52.1	102.73
21	9 0 54.36	11 41 47.9	86.47	21	10 31 45.67	4 2 35.7	102.93
22	9 2 49.66	11 33 9.1	86.95	22	10 33 38.32	3 52 18.1	103.13
23	9 4 44.86	11 24 27.4	87.42	23	10 35 30.97	3 41 59.3	103.32
24	9 6 39.96	N. 11 15 42.9		24	10 37 23.62	N. 3 31 39.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
MONDAY 21.				WEDNESDAY 23.			
	h m s	N. ° ' "	"		h m s	S. ° ' "	"
0	10 37 23.62	N. 3 31 39.3	103° 50	0	12 8 25.75	S. 4 53 39.6	104° 38
1	10 39 16.28	3 21 18.3	103° 68	1	12 10 21.72	5 4 5.9	104° 22
2	10 41 8.94	3 10 56.1	103° 85	2	12 12 17.81	5 14 31.2	104° 06
3	10 43 1.62	3 0 33.0	104° 02	3	12 14 14.04	5 24 55.6	103° 89
4	10 44 54.32	2 50 8.9	104° 18	4	12 16 10.40	5 35 18.9	103° 70
5	10 46 47.03	2 39 43.8	104° 33	5	12 18 6.90	5 45 41.1	103° 51
6	10 48 39.76	2 29 17.8	104° 48	6	12 20 3.54	5 56 2.2	103° 32
7	10 50 32.51	2 18 51.0	104° 62	7	12 22 0.32	6 6 22.1	103° 12
8	10 52 25.29	2 8 23.3	104° 75	8	12 23 57.24	6 16 40.8	102° 90
9	10 54 18.10	1 57 54.8	104° 87	9	12 25 54.32	6 26 58.2	102° 68
10	10 56 10.94	1 47 25.6	104° 99	10	12 27 51.54	6 37 14.3	102° 45
11	10 58 3.80	1 36 55.6	105° 10	11	12 29 48.91	6 47 29.0	102° 21
12	10 59 56.71	1 26 25.0	105° 20	12	12 31 46.43	6 57 42.3	101° 97
13	11 1 49.65	1 15 53.8	105° 30	13	12 33 44.11	7 7 54.1	101° 72
14	11 3 42.63	1 5 21.9	105° 40	14	12 35 41.95	7 18 4.5	101° 46
15	11 5 35.65	0 54 49.5	105° 48	15	12 37 39.96	7 28 13.2	101° 19
16	11 7 28.72	0 44 16.6	105° 56	16	12 39 38.12	7 38 20.4	100° 91
17	11 9 21.84	0 33 43.3	105° 64	17	12 41 36.45	7 48 25.8	100° 63
18	11 11 15.01	0 23 9.4	105° 70	18	12 43 34.94	7 58 29.6	100° 33
19	11 13 8.22	0 12 35.2	105° 76	19	12 45 33.61	8 8 31.6	100° 03
20	11 15 1.50	N. 0 2 0.7	105° 81	20	12 47 32.45	8 18 31.8	99° 72
21	11 16 54.83	S. 0 8 34.2	105° 86	21	12 49 31.46	8 28 30.1	99° 40
22	11 18 48.22	0 19 9.4	105° 90	22	12 51 30.64	8 38 26.5	99° 07
23	11 20 41.68	S. 0 29 44.7	105° 93	23	12 53 30.00	S. 8 48 20.9	98° 74
TUESDAY 22.				THURSDAY 24.			
	h m s	S. ° ' "	"		h m s	S. ° ' "	"
0	11 22 35.19	S. 0 40 20.3	105° 95	0	12 55 29.55	S. 8 58 13.4	98° 39
1	11 24 28.78	0 50 56.0	105° 97	1	12 57 29.28	9 8 3.7	98° 04
2	11 26 22.43	1 1 31.8	105° 98	2	12 59 29.19	9 17 51.9	97° 68
3	11 28 16.16	1 12 7.7	105° 98	3	13 1 29.28	9 27 38.0	97° 31
4	11 30 9.96	1 22 43.6	105° 98	4	13 3 29.57	9 37 21.9	96° 93
5	11 32 3.85	1 33 19.5	105° 97	5	13 5 30.04	9 47 3.5	96° 55
6	11 33 57.81	1 43 55.3	105° 95	6	13 7 30.71	9 56 42.8	96° 15
7	11 35 51.85	1 54 31.0	105° 93	7	13 9 31.56	10 6 19.7	95° 75
8	11 37 45.98	2 5 6.6	105° 89	8	13 11 32.62	10 15 54.3	95° 34
9	11 39 40.20	2 15 41.9	105° 86	9	13 13 33.87	10 25 26.3	94° 92
10	11 41 34.51	2 26 17.1	105° 81	10	13 15 35.33	10 34 55.8	94° 49
11	11 43 28.92	2 36 51.9	105° 76	11	13 17 36.98	10 44 22.8	94° 05
12	11 45 23.41	2 47 26.4	105° 69	12	13 19 38.84	10 53 47.1	93° 61
13	11 47 18.01	2 58 0.6	105° 63	13	13 21 40.90	11 3 8.8	93° 16
14	11 49 12.70	3 8 34.3	105° 55	14	13 23 43.17	11 12 27.7	92° 69
15	11 51 7.50	3 19 7.6	105° 47	15	13 25 45.65	11 21 43.9	92° 22
16	11 53 2.41	3 29 40.5	105° 38	16	13 27 48.33	11 30 57.2	91° 74
17	11 54 57.42	3 40 12.7	105° 28	17	13 29 51.23	11 40 7.6	91° 25
18	11 56 52.55	3 50 44.4	105° 18	18	13 31 54.34	11 49 15.1	90° 75
19	11 58 47.79	4 1 15.5	105° 06	19	13 33 57.67	11 58 19.6	90° 24
20	12 0 43.14	4 11 45.8	104° 94	20	13 36 1.21	12 7 21.0	89° 72
21	12 2 38.61	4 22 15.5	104° 81	21	13 38 4.97	12 16 19.4	89° 20
22	12 4 34.20	4 32 44.4	104° 68	22	13 40 8.95	12 25 14.6	88° 66
23	12 6 29.91	4 43 12.4	104° 53	23	13 42 13.15	12 34 6.5	88° 12
24	12 8 25.75	S. 4 53 39.6		24	13 44 17.58	S. 12 42 55.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 25.				SUNDAY 27.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	13 44 17.58	S. 12 42 55.2	87.57	0	15 28 27.16	S. 18 24 27.7	50.59
1	13 46 22.23	12 51 40.6	87.01	1	15 30 43.20	18 29 31.2	49.61
2	13 48 27.10	13 0 22.7	86.44	2	15 32 59.47	18 34 28.9	48.62
3	13 50 32.19	13 9 1.3	85.86	3	15 35 15.97	18 39 20.6	47.62
4	13 52 37.52	13 17 36.5	85.27	4	15 37 32.69	18 44 6.3	46.62
5	13 54 43.07	13 26 8.1	84.67	5	15 39 49.64	18 48 46.0	45.61
6	13 56 48.85	13 34 36.1	84.07	6	15 42 6.81	18 53 19.7	44.59
7	13 58 54.87	13 43 0.5	83.45	7	15 44 24.20	18 57 47.2	43.56
8	14 1 1.11	13 51 21.2	82.83	8	15 46 41.81	19 2 8.6	42.53
9	14 3 7.59	13 59 38.2	82.20	9	15 48 59.64	19 6 23.8	41.48
10	14 5 14.30	14 7 51.4	81.55	10	15 51 17.69	19 10 32.7	40.43
11	14 7 21.24	14 16 0.7	80.90	11	15 53 35.94	19 14 35.3	39.38
12	14 9 28.43	14 24 6.0	80.23	12	15 55 54.41	19 18 31.6	38.32
13	14 11 35.85	14 32 7.5	79.57	13	15 58 13.09	19 22 21.5	37.25
14	14 13 43.50	14 40 4.9	78.90	14	16 0 31.98	19 26 5.0	36.17
15	14 15 51.39	14 47 58.3	78.21	15	16 2 51.07	19 29 42.0	35.09
16	14 17 59.53	14 55 47.5	77.51	16	16 5 10.37	19 33 12.6	34.00
17	14 20 7.90	15 3 32.6	76.81	17	16 7 29.87	19 36 36.5	32.90
18	14 22 16.51	15 11 13.5	76.10	18	16 9 49.57	19 39 53.9	31.80
19	14 24 25.36	15 18 50.0	75.37	19	16 12 9.47	19 43 4.7	30.68
20	14 26 34.46	15 26 22.3	74.64	20	16 14 29.56	19 46 8.8	29.57
21	14 28 43.79	15 33 50.1	73.90	21	16 16 49.84	19 49 6.2	28.45
22	14 30 53.37	15 41 13.5	73.15	22	16 19 10.31	19 51 56.9	27.32
23	14 33 3.19	S. 15 48 32.5	72.39	23	16 21 30.97	S. 19 54 40.8	26.18
SATURDAY 26.				MONDAY 28.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	14 35 13.25	S. 15 55 46.8	71.62	0	16 23 51.81	S. 19 57 17.8	25.04
1	14 37 23.55	16 2 56.5	70.84	1	16 26 12.83	19 59 48.0	23.89
2	14 39 34.10	16 10 1.6	70.06	2	16 28 34.04	20 2 11.4	22.74
3	14 41 44.89	16 17 2.0	69.26	3	16 30 55.41	20 4 27.8	21.58
4	14 43 55.92	16 23 57.5	68.46	4	16 33 16.96	20 6 37.3	20.42
5	14 46 7.20	16 30 48.3	67.65	5	16 35 38.68	20 8 39.8	19.25
6	14 48 18.72	16 37 34.2	66.83	6	16 38 0.57	20 10 35.3	18.08
7	14 50 30.48	16 44 15.2	66.00	7	16 40 22.62	20 12 23.8	16.90
8	14 52 42.48	16 50 51.1	65.16	8	16 42 44.83	20 14 5.2	15.71
9	14 54 54.72	16 57 22.1	64.31	9	16 45 7.20	20 15 39.4	14.52
10	14 57 7.21	17 3 47.9	63.45	10	16 47 29.73	20 17 6.6	13.33
11	14 59 19.94	17 10 8.7	62.59	11	16 49 52.40	20 18 26.6	12.13
12	15 1 32.91	17 16 24.2	61.72	12	16 52 15.23	20 19 39.4	10.93
13	15 3 46.12	17 22 34.5	60.84	13	16 54 38.20	20 20 45.0	9.73
14	15 5 59.58	17 28 39.5	59.95	14	16 57 1.32	20 21 43.4	8.52
15	15 8 13.27	17 34 39.2	59.05	15	16 59 24.57	20 22 34.5	7.30
16	15 10 27.20	17 40 33.5	58.14	16	17 1 47.96	20 23 18.3	6.08
17	15 12 41.37	17 46 22.3	57.23	17	17 4 11.48	20 23 54.8	4.86
18	15 14 55.78	17 52 5.7	56.30	18	17 6 35.12	20 24 24.0	3.64
19	15 17 10.42	17 57 43.5	55.37	19	17 8 58.90	20 24 45.8	2.41
20	15 19 25.30	18 3 15.7	54.43	20	17 11 22.79	20 25 0.3	1.18
21	15 21 40.42	18 8 42.3	53.48	21	17 13 46.80	20 25 7.4	0.05
22	15 23 55.76	18 14 3.2	52.53	22	17 16 10.93	20 25 7.0	1.88
23	15 26 11.34	18 19 18.4	51.56	23	17 18 35.16	20 24 59.3	2.53
24	15 28 27.16	S. 18 24 27.7		24	17 20 59.50	S. 20 24 44.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 29.				THURSDAY 31.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	17 20 59.50	S. 20 24 44.1	3.77	0	19 17 23.63	S. 17 45 39.0	63.09
1	17 23 23.94	20 24 21.5	5.02	1	19 19 48.92	17 39 20.5	64.25
2	17 25 48.49	20 23 51.4	6.27	2	19 22 14.16	17 32 54.9	65.40
3	17 28 13.13	20 23 13.8	7.52	3	19 24 39.34	17 26 22.5	66.55
4	17 30 37.86	20 22 28.7	8.77	4	19 27 4.45	17 19 43.2	67.69
5	17 33 2.68	20 21 36.1	10.02	5	19 29 29.51	17 12 57.1	68.82
6	17 35 27.58	20 20 36.0	11.28	6	19 31 54.49	17 6 4.1	69.95
7	17 37 52.57	20 19 28.3	12.53	7	19 34 19.41	16 59 4.4	71.07
8	17 40 17.64	20 18 13.1	13.78	8	19 36 44.26	16 51 58.0	72.18
9	17 42 42.78	20 16 50.4	15.04	9	19 39 9.04	16 44 44.9	73.29
10	17 45 7.99	20 15 20.2	16.30	10	19 41 33.74	16 37 25.1	74.39
11	17 47 33.27	20 13 42.4	17.57	11	19 43 58.37	16 29 58.8	75.48
12	17 49 58.61	20 11 57.0	18.82	12	19 46 22.93	16 22 26.0	76.56
13	17 52 24.01	20 10 4.1	20.08	13	19 48 47.41	16 14 46.7	77.63
14	17 54 49.47	20 8 3.6	21.34	14	19 51 11.80	16 7 0.8	78.70
15	17 57 14.98	20 5 55.5	22.60	15	19 53 36.11	15 59 8.6	79.76
16	17 59 40.54	20 3 39.9	23.87	16	19 56 0.34	15 51 10.0	80.82
17	18 2 6.15	20 1 16.7	25.13	17	19 58 24.49	15 43 5.1	81.86
18	18 4 31.80	19 58 45.9	26.39	18	20 0 48.55	15 34 54.0	82.90
19	18 6 57.48	19 56 7.6	27.65	19	20 3 12.52	15 26 36.6	83.92
20	18 9 23.20	19 53 21.7	28.90	20	20 5 36.41	15 18 13.1	84.94
21	18 11 48.95	19 50 28.3	30.16	21	20 8 0.20	15 9 43.5	85.95
22	18 14 14.73	19 47 27.3	31.42	22	20 10 23.91	15 1 7.8	86.95
23	18 16 40.53	S. 19 44 18.8	32.67	23	20 12 47.52	S. 14 52 26.1	87.94
WEDNESDAY 30.				FRIDAY, APRIL 1.			
0	18 19 6.35	S. 19 41 2.8	33.93	0	20 15 11.04	S. 14 43 38.4	
1	18 21 32.19	19 37 39.2	35.18				
2	18 23 58.04	19 34 8.2	36.43				
3	18 26 23.91	19 30 29.6	37.68				
4	18 28 49.78	19 26 43.5	38.92				
5	18 31 15.65	19 22 50.0	40.16				
6	18 33 41.52	19 18 49.0	41.40				
7	18 36 7.39	19 14 40.6	42.64				
8	18 38 33.25	19 10 24.7	43.87				
9	18 40 59.10	19 6 1.3	45.11				
10	18 43 24.94	19 1 30.8	46.34				
11	18 45 50.77	18 56 52.8	47.56				
12	18 48 16.57	18 52 7.5	48.78				
13	18 50 42.35	18 47 14.8	50.00				
14	18 53 8.11	18 42 14.8	51.21				
15	18 55 33.83	18 37 7.6	52.42				
16	18 57 59.52	18 31 53.0	53.63				
17	19 0 25.18	18 26 31.3	54.83				
18	19 2 50.81	18 21 2.3	56.02				
19	19 5 16.39	18 15 26.2	57.21				
20	19 7 41.94	18 9 42.9	58.40				
21	19 10 7.44	18 3 52.5	59.58				
22	19 12 32.89	17 57 55.1	60.75				
23	19 14 58.29	17 51 50.5	61.92				
24	19 17 23.63	S. 17 45 39.0					

PHASES OF THE MOON.

	d	h	m
(Last Quarter -	1	1	11.5
● New Moon -	7	15	59.1
) First Quarter -	14	18	7.3
○ Full Moon -	22	22	24.2
(Last Quarter -	30	10	19.8

	d	h
(Perigee -	6	14
(Apogee -	18	20

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	Saturn W.	53 27 39	2512	55 8 36	2495	56 49 56	2479	58 31 39	2463
	Spica W.	48 46 8	2499	50 27 23	2484	52 8 59	2468	53 50 57	2454
	Mars E.	44 2 54	2787	42 28 9	2774	40 53 7	2761	39 17 48	2748
	α Aquilæ E.	54 19 29	3172	52 52 47	3188	51 26 24	3208	50 0 24	3231
	Venus E.	55 28 48	2934	53 57 12	2919	52 25 17	2903	50 53 2	2888
	Sun E.	90 37 5	2849	89 3 41	2833	87 29 56	2818	85 55 51	2801
2	Saturn W.	67 5 54	2383	68 49 53	2366	70 34 16	2351	72 19 1	2335
	Spica W.	62 26 7	2377	64 10 15	2362	65 54 45	2346	67 39 38	2331
	Jupiter W.	26 51 4	2388	28 34 56	2372	30 19 11	2357	32 3 47	2341
	Venus E.	43 6 56	2814	41 32 46	2799	39 58 17	2785	38 23 30	2772
	Sun E.	77 59 59	2718	76 23 43	2702	74 47 6	2685	73 10 6	2669
3	Saturn W.	81 8 27	2259	82 55 27	2244	84 42 49	2229	86 30 33	2216
	Spica W.	76 29 32	2256	78 16 36	2241	80 4 3	2227	81 51 50	2212
	Jupiter W.	40 52 26	2265	42 39 17	2251	44 26 29	2236	46 14 3	2222
	Antares W.	31 28 46	2340	33 13 47	2318	34 59 21	2297	36 45 25	2277
	Sun E.	64 59 43	2590	63 20 34	2575	61 41 4	2560	60 1 14	2545
4	Saturn W.	95 34 19	2149	97 24 3	2137	99 14 5	2126	101 4 25	2115
	Jupiter W.	55 17 4	2155	57 6 40	2143	58 56 34	2130	60 46 47	2118
	Antares W.	45 42 35	2192	47 31 15	2177	49 20 18	2163	51 9 42	2149
	Sun E.	51 37 8	2477	49 55 23	2465	48 13 21	2455	46 31 4	2443
5	Jupiter W.	70 2 2	2068	71 53 50	2060	73 45 51	2052	75 38 4	2045
	Antares W.	60 21 26	2092	62 12 37	2083	64 4 2	2074	65 55 41	2066
	Sun E.	37 56 6	2400	36 12 32	2395	34 28 50	2390	32 45 1	2387
10	Sun W.	32 6 52	2620	33 45 20	2634	35 23 28	2649	37 1 16	2666
	Aldebaran E.	46 16 4	2279	44 29 33	2298	42 43 30	2316	40 57 54	2335
	Pollux E.	88 49 59	2341	87 4 59	2359	85 20 25	2376	83 36 16	2395
11	Sun W.	45 4 36	2754	46 40 4	2772	48 15 8	2791	49 49 47	2811
	Aldebaran E.	32 17 5	2440	30 34 27	2462	28 52 20	2486	27 10 47	2510
	Pollux E.	75 2 13	2492	73 20 48	2512	71 39 51	2532	69 59 22	2553
12	Sun W.	57 36 44	2909	59 8 52	2928	60 40 35	2947	62 11 54	2966
	Pollux E.	61 44 18	2661	60 6 46	2683	58 29 44	2706	56 53 12	2730
	Regulus E.	98 8 0	2573	96 28 28	2592	94 49 22	2610	93 10 40	2629
13	Sun W.	69 42 28	3061	71 11 25	3080	72 39 59	3097	74 8 12	3115
	α Arietis W.	29 12 20	2904	30 44 34	2903	32 16 49	2904	33 49 3	2907
	Pollux E.	48 58 18	2849	47 24 53	2874	45 52 1	2900	44 19 42	2926
	Regulus E.	85 3 23	2718	83 27 7	2735	81 51 14	2752	80 15 43	2769
14	Sun W.	81 24 0	3199	82 50 11	3215	84 16 3	3230	85 41 36	3244
	α Arietis W.	41 28 46	2938	43 0 17	2946	44 31 37	2954	46 2 47	2964
	Pollux E.	36 46 50	3074	35 18 9	3109	33 50 11	3146	32 22 57	3186
	Regulus E.	72 23 33	2849	70 50 9	2864	69 17 4	2878	67 44 17	2893
	Saturn E.	120 45 17	2830	119 11 28	2844	117 37 57	2857	116 4 43	2870
15	Sun W.	92 45 13	3313	94 9 10	3325	95 32 53	3337	96 56 22	3348
	α Arietis W.	53 35 49	3008	55 5 52	3016	56 35 45	3024	58 5 28	3033
	Aldebaran W.	20 8 2	3012	21 38 0	3014	23 7 56	3016	24 37 49	3020
	Regulus E.	60 4 50	2959	58 33 46	2971	57 2 57	2983	55 32 23	2995

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Day of the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Saturn	W.	60° 13' 44"	2447	61° 56' 12"	2431	63° 39' 3"	2414	65° 22' 17"	2398
	Spica	W.	55° 33' 15"	2438	57° 15' 55"	2423	58° 58' 57"	2407	60° 42' 21"	2392
	Mars	E.	37° 42' 12"	2737	36° 6' 21"	2725	34° 30' 14"	2714	32° 53' 53"	2703
	α Aquilæ	E.	48° 34' 52"	3258	47° 9' 51"	3290	45° 45' 27"	3327	44° 21' 47"	3371
	Venus	E.	49° 20' 28"	2873	47° 47' 34"	2858	46° 14' 21"	2842	44° 40' 48"	2828
	Sun	E.	84° 21' 24"	2784	82° 46' 35"	2768	81° 11' 25"	2751	79° 35' 53"	2734
2	Saturn	W.	74° 4' 9"	2319	75° 49' 40"	2304	77° 35' 34"	2289	79° 21' 49"	2274
	Spica	W.	69° 24' 52"	2315	71° 10' 29"	2300	72° 56' 28"	2285	74° 42' 49"	2270
	Jupiter	W.	33° 48' 46"	2326	35° 34' 8"	2311	37° 19' 52"	2296	39° 5' 58"	2281
	Venus	E.	36° 48' 25"	2759	35° 13' 3"	2747	33° 37' 25"	2735	32° 1' 32"	2725
	Sun	E.	71° 32' 45"	2653	69° 55' 2"	2637	68° 16' 57"	2621	66° 38' 31"	2605
3	Saturn	W.	88° 18' 37"	2201	90° 7' 3"	2188	91° 55' 48"	2175	93° 44' 54"	2162
	Spica	W.	83° 39' 59"	2198	85° 28' 29"	2186	87° 17' 18"	2172	89° 6' 28"	2158
	Jupiter	W.	48° 1' 58"	2208	49° 50' 14"	2194	51° 38' 51"	2181	53° 27' 47"	2167
	Antares	W.	38° 31' 58"	2258	40° 18' 59"	2241	42° 6' 26"	2224	43° 54' 18"	2207
	Sun	E.	58° 21' 3"	2531	56° 40' 33"	2517	54° 59' 43"	2503	53° 18' 34"	2491
4	Saturn	W.	102° 55' 2"	2104	104° 45' 55"	2094	106° 37' 3"	2084	108° 28' 27"	2075
	Jupiter	W.	62° 37' 18"	2108	64° 28' 5"	2097	66° 19' 9"	2087	68° 10' 28"	2077
	Antares	W.	52° 59' 26"	2137	54° 49' 29"	2124	56° 39' 51"	2113	58° 30' 30"	2102
	Sun	E.	44° 48' 31"	2433	43° 5' 44"	2424	41° 22' 43"	2415	39° 39' 30"	2407
5	Jupiter	W.	77° 30' 29"	2039	79° 23' 3"	2032	81° 15' 47"	2027	83° 8' 39"	2022
	Antares	W.	67° 47' 32"	2059	69° 39' 35"	2053	71° 31' 47"	2047	73° 24' 8"	2042
	Sun	E.	31° 1' 8"	2385	29° 17' 11"	2385	27° 33' 15"	2387	25° 49' 21"	2391
10	Sun	W.	38° 38' 42"	2683	40° 15' 45"	2699	41° 52' 26"	2717	43° 28' 43"	2735
	Aldebaran	E.	39° 12' 45"	2355	37° 28' 6"	2375	35° 43' 56"	2396	34° 0' 15"	2417
	Pollux	E.	81° 52' 34"	2413	80° 9' 18"	2432	78° 26' 29"	2451	76° 44' 7"	2471
11	Sun	W.	51° 24' 0"	2830	52° 57' 49"	2850	54° 31' 12"	2869	56° 4' 10"	2888
	Aldebaran	E.	25° 29' 47"	2536	23° 49' 24"	2563	22° 9' 38"	2593	20° 30' 33"	2624
	Pollux	E.	68° 19' 23"	2574	66° 39' 52"	2596	65° 0' 51"	2618	63° 22' 20"	2639
12	Sun	W.	63° 42' 49"	2986	65° 13' 19"	3005	66° 43' 25"	3024	68° 13' 8"	3043
	Pollux	E.	55° 17' 12"	2753	53° 41' 42"	2776	52° 6' 42"	2800	50° 32' 14"	2824
	Regulus	E.	91° 32' 24"	2646	89° 54' 32"	2665	88° 17' 5"	2683	86° 40' 2"	2701
13	Sun	W.	75° 36' 3"	3133	77° 3' 32"	3149	78° 30' 42"	3167	79° 57' 31"	3183
	α Arietis	W.	35° 21' 13"	2911	36° 53' 18"	2916	38° 25' 17"	2924	39° 57' 6"	2931
	Pollux	E.	42° 47' 56"	2954	41° 16' 45"	2982	39° 46' 9"	3012	38° 16' 11"	3042
	Regulus	E.	78° 40' 35"	2785	77° 5' 48"	2802	75° 31' 22"	2818	73° 57' 18"	2833
14	Sun	W.	87° 6' 53"	3259	88° 31' 52"	3273	89° 56' 35"	3287	91° 21' 2"	3300
	α Arietis	W.	47° 33' 45"	2972	49° 4' 33"	2981	50° 35' 9"	2989	52° 5' 35"	2999
	Pollux	E.	30° 56' 31"	3229	29° 30' 56"	3277	28° 6' 17"	3330	26° 42' 40"	3389
	Regulus	E.	66° 11' 49"	2907	64° 39' 39"	2920	63° 7' 46"	2934	61° 36' 10"	2946
	Saturn	E.	114° 31' 45"	2883	112° 59' 4"	2895	111° 26' 38"	2907	109° 54' 28"	2919
15	Sun	W.	98° 19' 38"	3359	99° 42' 42"	3369	101° 5' 34"	3379	102° 28' 15"	3388
	α Arietis	W.	59° 35' 0"	3040	61° 4' 23"	3048	62° 33' 36"	3055	64° 2' 41"	3063
	Aldebaran	W.	26° 7' 37"	3024	27° 37' 20"	3029	29° 6' 57"	3034	30° 36' 28"	3038
	Regulus	E.	54° 2' 4"	3006	52° 31' 58"	3017	51° 2' 6"	3027	49° 32' 26"	3038

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Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
15	Saturn E.	108° 22' 33"	2929	106° 50' 51"	2941	105° 19' 24"	2951	103° 48' 10"	2961
16	Sun W.	103° 50' 45"	3397	105° 13' 5"	3406	106° 35' 15"	3414	107° 57' 16"	3421
	α Arietis W.	65° 31' 36"	3069	67° 0' 24"	3075	68° 29' 4"	3082	69° 57' 36"	3087
	Aldebaran W.	32° 5' 53"	3043	33° 35' 12"	3049	35° 4' 24"	3054	36° 33' 30"	3059
	Regulus E.	48° 3' 0"	3047	46° 33' 45"	3057	45° 4' 43"	3066	43° 35' 51"	3076
	Saturn E.	96° 14' 57"	3005	94° 44' 50"	3013	93° 14' 53"	3020	91° 45' 5"	3026
17	Sun W.	114° 45' 26"	3451	116° 6' 45"	3456	117° 27' 58"	3461	118° 49' 6"	3464
	α Arietis W.	77° 18' 41"	3111	78° 46' 37"	3114	80° 14' 30"	3118	81° 42' 18"	3120
	Aldebaran W.	43° 57' 38"	3079	45° 26' 13"	3082	46° 54' 45"	3085	48° 23' 13"	3087
	Regulus E.	36° 14' 19"	3119	34° 46' 33"	3128	33° 18' 57"	3137	31° 51' 32"	3146
	Saturn E.	84° 17' 56"	3054	82° 48' 50"	3057	81° 19' 48"	3062	79° 50' 52"	3065
	Spica E.	89° 46' 30"	3059	88° 17' 30"	3063	86° 48' 35"	3067	85° 19' 45"	3069
18	Sun W.	125° 33' 53"	3477	126° 54' 43"	3479	128° 15' 31"	3479	129° 36' 19"	3480
	Aldebaran W.	55° 44' 57"	3095	57° 13' 13"	3095	58° 41' 29"	3095	60° 9' 45"	3095
	Pollux W.	17° 3' 17"	4221	18° 11' 23"	4055	19° 22' 9"	3921	20° 35' 7"	3813
	Saturn E.	72° 27' 3"	3077	70° 58' 25"	3078	69° 29' 49"	3078	68° 1' 13"	3080
	Spica E.	77° 56' 22"	3080	76° 27' 48"	3081	74° 59' 15"	3082	73° 30' 43"	3082
	Jupiter E.	113° 40' 17"	3074	112° 11' 36"	3075	110° 42' 56"	3075	109° 14' 16"	3075
19	Aldebaran W.	67° 31' 17"	3088	68° 59' 41"	3086	70° 28' 7"	3083	71° 56' 37"	3081
	Pollux W.	27° 2' 30"	3490	28° 23' 5"	3450	29° 44' 25"	3415	31° 6' 24"	3385
	Saturn E.	60° 38' 20"	3078	59° 9' 44"	3077	57° 41' 6"	3076	56° 12' 27"	3074
	Spica E.	66° 7' 56"	3077	64° 39' 18"	3076	63° 10' 39"	3073	61° 41' 56"	3070
	Jupiter E.	101° 50' 49"	3069	100° 22' 2"	3068	98° 53' 14"	3065	97° 24' 22"	3063
20	Aldebaran W.	79° 19' 59"	3063	80° 48' 54"	3060	82° 17' 53"	3055	83° 46' 58"	3051
	Pollux W.	38° 3' 58"	3271	39° 28' 43"	3254	40° 53' 48"	3238	42° 19' 12"	3223
	Saturn E.	48° 48' 40"	3064	47° 19' 47"	3062	45° 50' 51"	3060	44° 21' 52"	3057
	Spica E.	54° 17' 29"	3054	52° 48' 23"	3049	51° 19' 11"	3045	49° 49' 54"	3041
	Jupiter E.	89° 59' 8"	3045	88° 29' 51"	3042	87° 0' 30"	3037	85° 31' 3"	3032
	Antares E.	99° 45' 51"	3079	98° 17' 16"	3075	96° 48' 36"	3070	95° 19' 50"	3065
21	Aldebaran W.	91° 13' 53"	3025	92° 43' 35"	3018	94° 13' 25"	3012	95° 43' 23"	3006
	Pollux W.	49° 30' 27"	3157	50° 57' 28"	3145	52° 24' 43"	3134	53° 52' 11"	3123
	Saturn E.	36° 56' 17"	3048	35° 27' 3"	3046	33° 57' 48"	3045	32° 28' 31"	3046
	Spica E.	42° 21' 59"	3015	40° 52' 5"	3009	39° 22' 3"	3002	37° 51' 53"	2997
	Jupiter E.	78° 2' 14"	3005	76° 32' 7"	3000	75° 1' 54"	2993	73° 31' 33"	2987
	Antares E.	87° 54' 29"	3039	86° 25' 5"	3034	84° 55' 34"	3028	83° 25' 56"	3022
22	Pollux W.	61° 12' 48"	3071	62° 41' 33"	3061	64° 10' 30"	3052	65° 39' 38"	3043
	Regulus W.	24° 10' 50"	3081	25° 39' 23"	3061	27° 8' 21"	3044	28° 37' 39"	3028
	Spica E.	30° 19' 9"	2964	28° 48' 11"	2957	27° 17' 5"	2950	25° 45' 50"	2943
	Jupiter E.	65° 57' 47"	2954	64° 26' 36"	2947	62° 55' 17"	2940	61° 23' 49"	2932
	Antares E.	75° 55' 52"	2990	74° 25' 27"	2985	72° 54' 55"	2978	71° 24' 15"	2971
23	Pollux W.	73° 8' 13"	2997	74° 38' 30"	2988	76° 8' 58"	2979	77° 39' 37"	2970
	Regulus W.	36° 8' 40"	2963	37° 39' 39"	2951	39° 10' 53"	2940	40° 42' 21"	2930
	Jupiter E.	53° 44' 7"	2895	52° 11' 42"	2888	50° 39' 8"	2880	49° 6' 23"	2873
	Antares E.	63° 48' 47"	2938	62° 17' 17"	2931	60° 45' 38"	2925	59° 13' 50"	2919
24	Pollux W.	85° 15' 35"	2928	86° 47' 18"	2920	88° 19' 12"	2912	89° 51' 16"	2903

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Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
15	Saturn E.	102 17 8	1971	100 46 19	1980	99 15 41	1989	97 45 14	1997
16	Sun W.	109 19 9	1428	110 40 54	1435	112 2 31	1440	113 24 2	1446
	α Arietis W.	71 26 1	1092	72 54 20	1098	74 22 32	1102	75 50 39	1106
	Aldebaran W.	38 2 30	1064	39 31 24	1067	41 0 14	1072	42 28 58	1075
	Regulus E.	42 7 12	1084	40 38 42	1093	39 10 24	1101	37 42 16	1110
	Saturn E.	90 15 25	1032	88 45 52	1038	87 16 27	1043	85 47 8	1049
17	Sun W.	120 10 10	1467	121 31 11	1471	122 52 8	1473	124 13 2	1476
	α Arietis W.	83 10 3	1123	84 37 44	1125	86 5 23	1127	87 33 0	1129
	Aldebaran W.	49 51 38	1089	51 20 1	1091	52 48 21	1092	54 16 40	1094
	Regulus E.	30 24 18	1156	28 57 16	1167	27 30 28	1178	26 3 53	1191
	Saturn E.	78 22 0	1068	76 53 11	1071	75 24 26	1073	73 55 43	1075
	Spica E.	83 50 58	1073	82 22 15	1076	80 53 36	1077	79 24 58	1078
18	Sun W.	130 57 5	1480	132 17 51	1480	133 38 37	1480	134 59 23	1480
	Aldebaran W.	61 38 1	1094	63 6 18	1093	64 34 36	1092	66 2 56	1091
	Pollux W.	21 49 56	1735	23 6 17	1761	24 23 57	1788	25 42 45	1815
	Saturn E.	66 32 39	1080	65 4 5	1079	63 35 30	1080	62 6 56	1079
	Spica E.	72 2 11	1082	70 33 39	1081	69 5 6	1080	67 36 32	1078
	Jupiter E.	107 45 36	1075	106 16 56	1074	104 48 15	1073	103 19 33	1072
19	Aldebaran W.	73 25 10	1078	74 53 46	1075	76 22 26	1072	77 51 10	1068
	Pollux W.	32 28 58	1358	33 52 3	1333	35 15 36	1311	36 39 35	1290
	Saturn E.	54 43 46	1073	53 15 3	1071	51 46 18	1069	50 17 30	1067
	Spica E.	60 13 10	1068	58 44 21	1065	57 15 28	1061	55 46 31	1057
	Jupiter E.	95 55 27	1060	94 26 28	1057	92 57 26	1053	91 28 19	1050
20	Aldebaran W.	85 16 8	1045	86 45 25	1041	88 14 47	1035	89 44 17	1030
	Pollux W.	43 44 54	1208	45 10 54	1194	46 37 10	1182	48 3 41	1169
	Saturn E.	42 52 50	1055	41 23 46	1052	39 54 38	1051	38 25 29	1049
	Spica E.	48 20 32	1035	46 51 3	1031	45 21 28	1026	43 51 47	1020
	Jupiter E.	84 1 30	1026	82 31 50	1022	81 2 5	1017	79 32 13	1011
	Antares E.	93 50 58	1061	92 22 0	1056	90 52 56	1051	89 23 46	1045
21	Aldebaran W.	97 13 28	1001	98 43 40	994	100 14 1	988	101 44 29	981
	Pollux W.	55 19 53	1112	56 47 48	1101	58 15 56	1091	59 44 16	1082
	Saturn E.	30 59 15	1046	29 29 59	1048	28 0 46	1051	26 31 37	1056
	Spica E.	36 21 36	1091	34 51 12	1084	33 20 39	1077	31 49 58	1071
	Jupiter E.	72 1 4	1081	70 30 27	1074	68 59 42	1068	67 28 49	1061
	Antares E.	81 56 10	1016	80 26 17	1010	78 56 17	1003	77 26 8	997
22	Pollux W.	67 8 58	1033	68 38 30	1024	70 8 13	1015	71 38 7	1006
	Regulus W.	30 7 17	1013	31 37 13	1000	33 7 26	997	34 37 55	994
	Spica E.	24 14 26	1036	22 42 53	1029	21 11 11	1022	19 39 20	1014
	Jupiter E.	59 52 11	1025	58 20 24	1018	56 48 28	1011	55 16 23	1002
	Antares E.	69 53 26	1065	68 22 29	1058	66 51 23	1052	65 20 10	1044
23	Pollux W.	79 10 27	1062	80 41 28	1054	82 12 39	1044	83 44 2	1036
	Regulus W.	42 14 2	1020	43 45 56	1009	45 18 4	1009	46 50 24	1009
	Jupiter E.	47 33 29	1064	46 0 24	1056	44 27 9	1048	42 53 43	1040
	Antares E.	57 41 55	1011	56 9 50	1005	54 37 38	1008	53 5 17	1002
24	Pollux W.	91 23 31	1095	92 55 56	1087	94 28 31	1080	96 1 16	1072

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24	Regulus W.	48 22 57	2880	49 55 42	2870	51 28 39	2860	53 1 49	2851
	Jupiter E.	41 20 7	2832	39 46 21	2824	38 12 25	2815	36 38 17	2808
	Antares E.	51 32 48	2887	50 0 12	2880	48 27 28	2874	46 54 36	2869
	Mars E.	115 24 17	3146	113 57 3	3136	112 29 37	3128	111 2 1	3118
25	Regulus W.	60 50 39	2805	62 25 0	2795	63 59 34	2787	65 34 19	2777
	Saturn W.	14 1 12	3094	15 29 29	3026	16 59 10	2970	18 30 1	2925
	Antares E.	39 8 36	2845	37 35 6	2824	36 1 33	2839	34 27 56	2837
	α Aquilæ E.	91 50 8	3187	90 23 43	3178	88 57 7	3169	87 30 21	3162
	Mars E.	103 41 11	3073	102 12 28	3064	100 43 34	3054	99 14 28	3045
26	Regulus W.	73 31 5	2732	75 7 2	2723	76 43 11	2714	78 19 32	2705
	Saturn W.	26 15 42	2786	27 50 28	2767	29 25 39	2750	31 1 12	2734
	α Aquilæ E.	80 14 30	3133	78 47 0	3129	77 19 25	3125	75 51 46	3123
	Mars E.	91 46 10	2999	90 15 56	2990	88 45 31	2981	87 14 54	2972
	Venus E.	115 0 5	3175	113 33 26	3164	112 6 34	3155	110 39 31	3144
27	Saturn W.	39 4 0	2664	40 41 28	2652	42 19 13	2640	43 57 14	2628
	Spica W.	32 29 44	2639	34 7 46	2630	35 46 0	2621	37 24 27	2611
	α Aquilæ E.	68 33 1	3121	67 5 17	3124	65 37 36	3128	64 10 0	3123
	Mars E.	79 38 55	2925	78 7 8	2915	76 35 8	2906	75 2 57	2897
	Venus E.	103 21 4	3092	101 52 44	3082	100 24 12	3072	98 55 28	3061
	SUN E.	132 43 32	2995	131 13 13	2985	129 42 41	2974	128 11 56	2963
28	Saturn W.	52 11 17	2571	53 50 52	2560	55 30 42	2549	57 10 47	2538
	Spica W.	45 39 57	2564	47 19 42	2553	48 59 41	2543	50 39 54	2534
	Mars E.	67 18 59	2849	65 45 35	2839	64 11 58	2830	62 38 9	2821
	Fomalhaut E.	85 26 0	3037	83 56 33	3030	82 26 58	3024	80 57 15	3019
	Venus E.	91 28 29	3008	89 58 26	2997	88 28 9	2986	86 57 39	2975
	SUN E.	120 34 44	2909	119 2 36	2898	117 30 15	2887	115 57 39	2876
29	Saturn W.	65 35 3	2484	67 16 39	2472	68 58 31	2462	70 40 38	2451
	Spica W.	59 4 26	2483	60 46 3	2472	62 27 55	2463	64 10 1	2453
	Mars E.	54 46 1	2774	53 10 59	2765	51 35 45	2756	50 0 19	2747
	Fomalhaut E.	73 27 20	3004	71 57 12	3004	70 27 4	3005	68 56 57	3007
	Venus E.	79 21 42	2920	77 49 49	2909	76 17 42	2898	74 45 21	2887
	SUN E.	108 11 5	2819	106 37 2	2808	105 2 45	2797	103 28 13	2785
30	Saturn W.	79 15 3	2397	80 58 42	2387	82 42 36	2375	84 26 46	2365
	Jupiter W.	37 24 56	2383	39 8 55	2373	40 53 9	2362	42 37 38	2352
	Antares W.	27 51 28	2512	29 32 24	2491	31 13 50	2470	32 55 45	2451
	Mars E.	42 0 23	2708	40 23 53	2701	38 47 14	2695	37 10 27	2689
	Fomalhaut E.	61 27 40	3041	59 58 18	3053	58 29 11	3067	57 0 21	3085
	Venus E.	67 0 3	2832	65 26 17	2821	63 52 17	2810	62 18 2	2800
	α Pegasi E.	76 35 55	2561	74 56 6	2553	73 16 6	2545	71 35 55	2538
	SUN E.	95 31 48	2729	93 55 46	2717	92 19 28	2705	90 42 55	2694
31	Saturn W.	93 11 21	2313	94 57 1	2304	96 42 55	2294	98 29 4	2284
	Jupiter W.	51 23 53	2300	53 9 53	2289	54 56 9	2279	56 42 40	2269
	Antares W.	41 31 28	2373	43 15 42	2359	45 0 16	2345	46 45 10	2333
	Fomalhaut E.	49 42 49	3223	48 17 7	3265	46 52 15	3312	45 28 17	3366
	Venus E.	54 23 26	2749	52 47 51	2739	51 12 3	2730	49 36 3	2720
	α Pegasi E.	63 12 48	2510	61 31 48	2507	59 50 44	2504	58 9 36	2502
	SUN E.	82 36 23	2638	80 58 19	2626	79 20 0	2615	77 41 26	2605

MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
24	Regulus W.	54 35 11	2841	56 8 45	2832	57 42 31	2823	59 16 29	2814
	Jupiter E.	35 3 59	2800	33 29 31	2791	31 54 51	2783	30 20 1	2775
	Antares E.	45 21 37	2863	43 48 31	2859	42 15 19	2853	40 42 0	2849
	Mars E.	109 34 13	3109	108 6 14	3100	106 38 4	3091	105 9 43	3082
25	Regulus W.	67 9 17	2769	68 44 26	2760	70 19 47	2750	71 55 20	2741
	Saturn W.	20 1 49	2888	21 34 23	2858	23 7 36	2831	24 41 24	2808
	Antares E.	32 54 16	2836	31 20 35	2836	29 46 54	2838	28 13 16	2824
	α Aquilæ E.	86 3 26	3155	84 36 23	3148	83 9 12	3143	81 41 54	3138
	Mars E.	97 45 11	3036	96 15 43	3026	94 46 3	3018	93 16 12	3009
26	Regulus W.	79 56 5	2696	81 32 50	2687	83 9 47	2678	84 46 57	2669
	Saturn W.	32 37 7	2719	34 13 22	2704	35 49 57	2690	37 26 50	2677
	α Aquilæ E.	74 24 4	3121	72 56 20	3119	71 28 34	3119	70 0 47	3119
	Mars E.	85 44 6	2962	84 13 6	2953	82 41 54	2943	81 10 30	2935
	Venus E.	109 12 14	3134	107 44 45	3124	106 17 4	3113	104 49 10	3103
27	Saturn W.	45 35 31	2616	47 14 4	2604	48 52 53	2593	50 31 57	2582
	Spica W.	39 3 7	2601	40 42 0	2592	42 21 6	2582	44 0 25	2573
	α Aquilæ E.	62 42 30	3139	61 15 7	3146	59 47 53	3156	58 20 51	3167
	Mars E.	73 30 34	2887	71 57 59	2877	70 25 11	2868	68 52 11	2859
	Venus E.	97 26 30	3051	95 57 20	3039	94 27 56	3029	92 58 19	3018
	Sun E.	126 40 57	2952	125 9 44	2942	123 38 18	2931	122 6 38	2920
28	Saturn W.	58 51 8	2527	60 31 44	2516	62 12 35	2505	63 53 41	2494
	Spica W.	52 20 20	2523	54 1 1	2514	55 41 55	2503	57 23 4	2494
	Mars E.	61 4 8	2811	59 29 55	2801	57 55 29	2792	56 20 51	2783
	Fomalhaut E.	79 27 26	3014	77 57 30	3010	76 27 30	3007	74 57 26	3005
	Venus E.	85 26 55	2964	83 55 57	2954	82 24 46	2943	80 53 21	2931
	Sun E.	114 24 49	2864	112 51 44	2854	111 18 26	2842	109 44 53	2831
29	Saturn W.	72 23 0	2440	74 5 38	2429	75 48 31	2419	77 31 39	2408
	Spica W.	65 52 21	2441	67 34 57	2431	69 17 47	2421	71 0 52	2410
	Mars E.	48 24 42	2738	46 48 53	2731	45 12 54	2722	43 36 43	2715
	Fomalhaut E.	67 26 53	3011	65 56 54	3015	64 27 0	3022	62 57 15	3031
	Venus E.	73 12 46	2876	71 39 56	2865	70 6 52	2855	68 33 35	2843
	Sun E.	101 53 26	2774	100 18 24	2763	98 43 7	2751	97 7 35	2740
30	Saturn W.	86 11 11	2355	87 55 51	2344	89 40 46	2334	91 25 56	2324
	Jupiter W.	44 22 22	2341	46 7 22	2330	47 52 37	2320	49 38 7	2309
	Antares W.	34 38 7	2434	36 20 53	2417	38 4 3	2402	39 47 35	2387
	Mars E.	35 33 32	2683	33 56 32	2682	32 19 27	2680	30 42 20	2679
	Fomalhaut E.	55 31 53	3105	54 3 50	3128	52 36 15	3156	51 9 13	3187
	Venus E.	60 43 34	2789	59 8 52	2779	57 33 57	2769	55 58 48	2759
	α Pegasi E.	69 55 35	2531	68 15 5	2525	66 34 27	2520	64 53 41	2515
	Sun E.	89 6 7	2683	87 29 4	2671	85 51 45	2660	84 14 11	2649
31	Saturn W.	100 15 27	2274	102 2 5	2266	103 48 55	2256	105 36 0	2247
	Jupiter W.	58 29 25	2259	60 16 25	2249	62 3 40	2239	63 51 9	2230
	Antares W.	48 30 21	2320	50 15 51	2309	52 1 38	2297	53 47 42	2286
	Fomalhaut E.	44 5 22	3229	42 43 38	3500	41 23 14	3582	40 4 20	3677
	Venus E.	47 59 50	2712	46 23 26	2704	44 46 51	2696	43 10 6	2689
	α Pegasi E.	56 28 26	2501	54 47 14	2502	53 6 3	2503	51 24 54	2507
	Sun E.	76 2 38	2595	74 23 36	2584	72 44 19	2574	71 4 48	256

Day of the Month.	AYER's Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	0.85684	1.49714	0.21914	1.47984	86.039
2	0.85074	1.49240	0.21962	1.47977	86.527
3	0.84491	1.48759	0.22010	1.47972	87.010
4	0.83934	1.48271	0.22057	1.47968	87.488
5	0.83404	1.47775	0.22104	1.47964	87.960
6	0.82904	1.47271	0.22150	1.47961	88.427
7	0.82438	1.46760	0.22196	1.47959	88.889
8	0.82001	1.46240	0.22241	1.47958	89.346
9	0.81597	1.45713	0.22286	1.47958	89.797
10	0.81227	1.45178	0.22330	1.47958	90.242
11	0.80892	1.44635	0.22374	1.47960	90.680
12	0.80593	1.44084	0.22418	1.47962	91.111
13	0.80331	1.43525	0.22462	1.47964	91.535
14	0.80107	1.42958	0.22506	1.47968	91.953
15	0.79920	1.42383	0.22550	1.47974	92.364
16	0.79769	1.41799	0.22593	1.47981	92.769
17	0.79658	1.41208	0.22636	1.47988	93.165
18	0.79586	1.40608	0.22679	1.47996	93.554
19	0.79552	1.40000	0.22722	1.48006	93.935
20	0.79560	1.39384	0.22765	1.48016	94.308
21	0.79606	1.38760	0.22808	1.48027	94.674
22	0.79691	1.38126	0.22850	1.48038	95.032
23	0.79812	1.37484	0.22893	1.48050	95.382
24	0.79971	1.36834	0.22936	1.48064	95.724
25	0.80167	1.36176	0.22979	1.48079	96.057
26	0.80403	1.35508	0.23023	1.48094	96.381
27	0.80675	1.34832	0.23067	1.48110	96.696
28	0.80982	1.34148	0.23110	1.48128	97.002
29	0.81325	1.33454	0.23154	1.48146	97.300
30	0.81700	1.32752	0.23198	1.48165	97.589
31	0.82107	1.32041	0.23242	1.48185	97.870
32	0.82546	1.31321	0.23286	1.48206	98.141

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^h 48 ^m 56 ^s or 0 ^h 48 ^m 55 ^s Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	-1.2506	+0.8072	+9.6593	+0.7150	h m s 1 21 36.38	344	60	.1643
2	1.2531	0.7835	9.6610	0.7147	1 17 40.47	345	61	.1670
3	1.2554	0.7584	9.6627	0.7144	1 13 44.57	346	62	.1698
4	-1.2575	+0.7315	+9.6644	+0.7141	1 9 48.66	347	63	.1725
5	1.2595	0.7027	9.6661	0.7139	1 5 52.75	348	64	.1752
6	1.2614	0.6718	9.6677	0.7137	1 1 56.85	349	65	.1780
7	-1.2631	+0.6384	+9.6694	+0.7136	0 58 0.95	350	66	.1807
8	1.2647	0.6021	9.6710	0.7135	0 54 5.04	351	67	.1834
9	1.2661	0.5623	9.6726	0.7135	0 50 9.14	352	68	.1862
10	-1.2674	+0.5184	+9.6742	+0.7135	0 46 13.23	353	69	.1889
11	1.2686	0.4695	9.6757	0.7136	0 42 17.32	354	70	.1917
12	1.2696	0.4142	9.6773	0.7137	0 38 21.42	355	71	.1944
13	-1.2705	+0.3507	+9.6788	+0.7139	0 34 25.51	356	72	.1971
14	1.2713	0.2762	9.6804	0.7142	0 30 29.60	357	73	.1999
15	1.2719	0.1861	9.6819	0.7145	0 26 33.70	358	74	.2026
16	-1.2724	+0.0722	+9.6834	+0.7149	0 22 37.79	359	75	.2053
17	1.2728	9.9175	9.6849	0.7153	0 18 41.88	360	76	.2081
18	1.2730	9.6746	9.6864	0.7158	0 14 45.98	361	77	.2108
19	-1.2731	+9.0746	+9.6879	+0.7163	0 10 50.07	362	78	.2136
20	1.2731	-9.3715	9.6894	0.7169	0 6 54.16	363	79	.2163
21	1.2730	9.7699	9.6908	0.7175	{ 0 2 58.25 }	364	80	.2190
22	-1.2727	-9.9741	+9.6923	+0.7182	23 55 6.44	0	81	.2218
23	1.2723	0.1122	9.6938	0.7189	23 51 10.53	1	82	.2245
24	1.2717	0.2167	9.6953	0.7197	23 47 14.63	2	83	.2272
25	-1.2711	-0.3007	+9.6967	+0.7205	23 43 18.72	3	84	.2300
26	1.2702	0.3709	9.6982	0.7214	23 39 22.82	4	85	.2327
27	1.2693	0.4312	9.6997	0.7224	23 35 26.91	5	86	.2354
28	-1.2683	-0.4840	+9.7012	+0.7234	23 31 31.01	6	87	.2381
29	1.2671	0.5309	9.7027	0.7244	23 27 35.10	7	88	.2408
30	1.2657	0.5731	9.7041	0.7255	23 23 39.20	8	89	.2435
31	1.2643	0.6114	9.7056	0.7266	23 19 43.29	9	90	.2462
32	-1.2627	-0.6465	+9.7071	+0.7278	23 15 47.38	10	91	.2490

* Add .0011 if Fraction be required for the time 4, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to sub. from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Frid.	1	0 44 13.03	9.100	N. 4 45 20.8	57.73	1 4.50	3 49.07	0.754
Sat.	2	0 47 51.50	9.106	5 8 23.7	57.51	1 4.52	3 31.05	0.748
Sun.	3	0 51 30.14	9.113	5 31 21.3	57.28	1 4.54	3 13.18	0.741
Mon.	4	0 55 8.93	9.120	5 54 13.2	57.03	1 4.56	2 55.48	0.734
Tues.	5	0 58 47.92	9.128	6 16 58.9	56.77	1 4.59	2 37.96	0.726
Wed.	6	1 2 27.10	9.137	6 39 38.2	56.50	1 4.62	2 20.62	0.717
Thur.	7	1 6 6.49	9.146	7 2 10.6	56.21	1 4.65	2 3.51	0.708
Frid.	8	1 9 46.12	9.156	7 24 35.8	55.90	1 4.69	1 46.64	0.698
Sat.	9	1 13 25.99	9.166	7 46 53.6	55.58	1 4.72	1 29.99	0.688
Sun.	10	1 17 6.11	9.177	8 9 3.4	55.24	1 4.76	1 13.60	0.677
Mon.	11	1 20 46.50	9.189	8 31 5.0	54.89	1 4.81	0 57.49	0.666
Tues.	12	1 24 27.17	9.201	8 52 58.0	54.52	1 4.85	0 41.64	0.654
Wed.	13	1 28 8.14	9.214	9 14 42.1	54.14	1 4.90	0 26.11	0.641
Thur.	14	1 31 49.42	9.227	9 36 16.9	53.75	1 4.95	0 10.88	0.628
Frid.	15	1 35 31.03	9.241	9 57 42.1	53.34	1 5.00	0 4.03	0.614
Sat.	16	1 39 12.98	9.256	10 18 57.4	52.92	1 5.06	0 18.59	0.599
Sun.	17	1 42 55.30	9.271	10 40 2.5	52.49	1 5.11	0 32.78	0.584
Mon.	18	1 46 37.98	9.287	11 0 56.9	52.04	1 5.17	0 46.62	0.568
Tues.	19	1 50 21.05	9.304	11 21 40.6	51.58	1 5.23	1 0.06	0.551
Wed.	20	1 54 4.55	9.321	11 42 12.9	51.11	1 5.30	1 13.08	0.534
Thur.	21	1 57 48.46	9.339	12 2 33.8	50.62	1 5.36	1 25.70	0.516
Frid.	22	2 1 32.82	9.358	12 22 42.8	50.12	1 5.43	1 37.86	0.497
Sat.	23	2 5 17.63	9.378	12 42 39.7	49.61	1 5.49	1 49.56	0.478
Sun.	24	2 9 2.92	9.398	13 2 24.2	49.09	1 5.56	2 0.79	0.458
Mon.	25	2 12 48.72	9.419	13 21 55.9	48.55	1 5.63	2 11.52	0.437
Tues.	26	2 16 35.00	9.440	13 41 14.6	48.00	1 5.70	2 21.76	0.416
Wed.	27	2 20 21.81	9.462	14 0 19.9	47.44	1 5.78	2 31.48	0.394
Thur.	28	2 24 9.16	9.484	14 19 11.5	46.86	1 5.85	2 40.67	0.372
Frid.	29	2 27 57.02	9.507	14 37 49.0	46.27	1 5.93	2 49.32	0.349
Sat.	30	2 31 45.45	9.530	14 56 12.2	45.66	1 6.00	2 57.43	0.327
Sun.	31	2 35 34.43		N. 15 14 20.6		1 6.08	3 4.99	

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subt. from added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		h m s	° ' "	' "	m s	h m s
Frid.	1	0 44 12.45	N. 4 45 17.1	16 1.7	3 49.12	0 40 23.33
Sat.	2	0 47 50.97	5 8 20.4	16 1.4	3 31.09	0 44 19.88
Sun.	3	0 51 29.65	5 31 18.3	16 1.1	3 13.22	0 48 16.43
Mon.	4	0 55 8.49	5 54 10.4	16 0.8	2 55.51	0 52 12.98
Tues.	5	0 58 47.52	6 16 56.4	16 0.6	2 37.99	0 56 9.53
Wed.	6	1 2 26.74	6 39 36.0	16 0.3	2 20.65	1 0 6.09
Thur.	7	1 6 6.18	7 2 8.7	16 0.0	2 3.54	1 4 2.64
Frid.	8	1 9 45.85	7 24 34.2	15 59.7	1 46.66	1 7 59.19
Sat.	9	1 13 25.76	7 46 52.2	15 59.5	1 30.01	1 11 55.75
Sun.	10	1 17 5.92	8 9 2.3	15 59.2	1 13.62	1 15 52.30
Mon.	11	1 20 46.35	8 31 4.1	15 58.9	0 57.50	1 19 48.85
Tues.	12	1 24 27.06	8 52 57.3	15 58.7	0 41.65	1 23 45.41
Wed.	13	1 28 8.07	9 14 41.7	15 58.4	0 26.11	1 27 41.96
Thur.	14	1 31 49.39	9 36 16.7	15 58.1	0 10.88	1 31 38.51
Frid.	15	1 35 31.04	9 57 42.2	15 57.9	0 4.03	1 35 35.07
Sat.	16	1 39 13.03	10 18 57.7	15 57.6	0 18.59	1 39 31.62
Sun.	17	1 42 55.38	10 40 3.0	15 57.4	0 32.79	1 43 28.17
Mon.	18	1 46 38.10	11 0 57.6	15 57.1	0 46.63	1 47 24.73
Tues.	19	1 50 21.21	11 21 41.4	15 56.8	1 0.07	1 51 21.28
Wed.	20	1 54 4.74	11 42 14.0	15 56.6	1 13.09	1 55 17.83
Thur.	21	1 57 48.68	12 2 35.0	15 56.3	1 25.71	1 59 14.39
Frid.	22	2 1 33.07	12 22 44.2	15 56.1	1 37.87	2 3 10.94
Sat.	23	2 5 17.92	12 42 41.2	15 55.8	1 49.57	2 7 7.49
Sun.	24	2 9 3.24	13 2 25.8	15 55.6	2 0.81	2 11 4.05
Mon.	25	2 12 49.06	13 21 57.7	15 55.3	2 11.54	2 15 0.60
Tues.	26	2 16 35.37	13 41 16.5	15 55.1	2 21.78	2 18 57.15
Wed.	27	2 20 22.21	14 0 21.9	15 54.8	2 31.50	2 22 53.71
Thur.	28	2 24 9.58	14 19 13.5	15 54.6	2 40.69	2 26 50.27
Frid.	29	2 27 57.47	14 37 51.1	15 54.3	2 49.34	2 30 46.82
Sat.	30	2 31 45.92	14 56 14.4	15 54.1	2 57.45	2 34 43.37
Sun.	31	2 35 34.92	N. 15 14 23.0	15 53.8	3 5.01	2 38 39.93

* The Semidiameter for *Apparent Noon* may be assumed the same as that for *Mean Noon*.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	12 1 10.5	N.0.31	0.0000647	16 15.8	16 19.4	59 35.1	59 48.4
2	13 0 17.0	0.34	0.0001926	16 22.5	16 25.0	59 59.7	60 8.7
3	13 59 21.7	0.33	0.0003200	16 26.7	16 27.6	60 15.0	60 18.3
4	14 58 24.5	0.29	0.0004466	16 27.6	16 26.6	60 18.2	60 14.7
5	15 57 25.5	0.20	0.0005723	16 24.7	16 21.8	60 7.6	59 57.0
6	16 56 24.5	N.0.10	0.0006972	16 18.0	16 13.3	59 43.1	59 26.1
7	17 55 21.4	S.0.03	0.0008213	16 8.0	16 2.0	59 6.4	58 44.6
8	18 54 16.3	0.16	0.0009444	15 55.6	15 48.9	58 21.1	57 56.5
9	19 53 9.2	0.30	0.0010666	15 42.0	15 35.1	57 31.3	57 6.0
10	20 51 59.9	0.42	0.0011879	15 28.3	15 21.8	56 41.2	56 17.3
11	21 50 48.4	0.54	0.0013084	15 15.7	15 10.0	55 54.8	55 33.9
12	22 49 34.7	0.64	0.0014282	15 4.8	15 0.2	55 15.0	54 58.2
13	23 48 18.7	0.72	0.0015474	14 56.3	14 53.1	54 43.9	54 32.0
14	24 47 0.5	0.79	0.0016660	14 50.5	14 48.7	54 22.6	54 15.9
15	25 45 40.0	0.82	0.0017841	14 47.6	14 47.1	54 11.7	54 10.1
16	26 44 17.2	0.84	0.0019017	14 47.3	14 48.2	54 11.0	54 14.1
17	27 42 52.3	0.82	0.0020190	14 49.6	14 51.7	54 19.5	54 27.0
18	28 41 25.2	0.79	0.0021359	14 54.3	14 57.2	54 36.3	54 47.3
19	29 39 55.9	0.73	0.0022526	15 0.6	15 4.4	54 59.7	55 13.3
20	30 38 24.6	0.65	0.0023691	15 8.3	15 12.5	55 27.9	55 43.2
21	31 36 51.4	0.56	0.0024854	15 16.8	15 21.2	55 59.0	56 15.0
22	32 35 16.3	0.44	0.0026014	15 25.6	15 30.0	56 31.1	56 47.1
23	33 33 39.4	0.33	0.0027171	15 34.2	15 38.4	57 2.8	57 18.0
24	34 32 0.7	0.20	0.0028326	15 42.4	15 46.2	57 32.6	57 46.7
25	35 30 20.4	S.0.09	0.0029478	15 49.9	15 53.3	58 0.0	58 12.5
26	36 28 38.5	N.0.03	0.0030626	15 56.5	15 59.5	58 24.3	58 35.4
27	37 26 55.1	0.12	0.0031767	16 2.3	16 4.8	58 45.6	58 54.9
28	38 25 10.2	0.18	0.0032901	16 7.1	16 9.2	59 3.3	59 10.8
29	39 23 23.7	0.21	0.0034026	16 10.9	16 12.3	59 17.2	59 22.4
30	40 21 35.8	0.21	0.0035141	16 13.4	16 14.1	59 26.3	59 28.7
31	41 19 46.4	N.0.17	0.0036243	16 14.3	16 14.0	59 29.4	59 28.3

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	^d	^h ^m
Frid.	1	302 41 0.2	309 53 58.0	N.4 58 24.8	N.5 7 1.2	24.3	20 19.7
Sat.	2	317 10 21.9	324 29 38.0	5 10 46.6	5 9 30.8	25.3	21 13.9
Sun.	3	331 51 4.0	339 13 51.4	5 3 9.6	4 51 45.8	26.3	22 7.4
Mon.	4	346 37 5.7	353 59 49.9	4 35 29.9	4 14 39.2	27.3	23 0.6
Tues.	5	1 21 5.3	8 39 54.5	3 49 38.4	3 20 57.7	28.3	23 54.0
Wed.	6	15 55 23.1	23 6 43.7	2 49 12.6	2 15 1.4	29.3	0
Thur.	7	30 13 14.3	37 14 21.8	1 39 4.0	N.1 2 0.8	0.9	0 47.8
Frid.	8	44 9 42.1	50 59 0.1	N.0 24 30.4	S.0 12 50.6	1.9	1 42.0
Sat.	9	57 42 9.6	64 19 12.5	S.0 49 28.9	1 24 55.2	2.9	2 36.2
Sun.	10	70 50 18.5	77 15 43.7	1 58 43.8	2 30 33.0	3.9	3 29.8
Mon.	11	83 35 49.6	89 51 2.4	3 0 4.7	3 27 3.9	4.9	4 21.9
Tues.	12	96 1 51.9	102 8 50.4	3 51 18.7	4 12 39.5	5.9	5 12.1
Wed.	13	108 12 32.0	114 13 32.1	4 30 58.4	4 46 9.7	6.9	6 0.1
Thur.	14	120 12 26.4	126 9 50.3	4 58 8.5	5 6 51.2	7.9	6 45.9
Frid.	15	132 6 19.0	138 2 26.3	5 12 15.1	5 14 18.3	8.9	7 30.0
Sat.	16	143 58 44.5	149 55 44.6	5 12 59.7	5 8 19.3	9.9	8 12.8
Sun.	17	155 53 54.8	161 53 41.5	5 0 17.7	4 48 57.1	10.9	8 55.2
Mon.	18	167 55 28.1	173 59 35.7	4 34 20.7	4 16 33.8	11.9	9 37.7
Tues.	19	180 6 22.0	186 16 2.5	3 55 43.3	3 31 58.4	12.9	10 21.1
Wed.	20	192 28 49.2	198 44 51.6	3 5 30.7	2 36 34.5	13.9	11 6.2
Thur.	21	205 4 16.4	211 27 7.6	2 5 26.2	1 32 25.8	14.9	11 53.6
Frid.	22	217 53 27.4	224 23 15.5	S.0 57 56.0	S.0 22 21.3	15.9	12 43.6
Sat.	23	230 56 29.9	237 33 7.7	N.0 13 51.2	N.0 50 11.9	16.9	13 36.3
Sun.	24	244 13 3.8	250 56 13.8	1 26 10.5	2 1 15.6	17.9	14 31.2
Mon.	25	257 42 31.1	264 31 48.9	2 34 54.5	3 6 37.4	18.9	15 27.6
Tues.	26	271 24 0.5	278 18 57.6	3 35 52.0	4 2 10.0	19.9	16 24.2
Wed.	27	285 16 31.6	292 16 33.1	4 25 4.1	4 44 9.6	20.9	17 20.0
Thur.	28	299 18 50.6	306 23 11.5	4 59 5.6	5 9 34.5	21.9	18 14.5
Frid.	29	313 29 21.2	320 37 2.4	5 15 22.9	5 16 22.2	22.9	19 7.6
Sat.	30	327 45 55.6	334 55 38.4	5 12 28.5	5 3 43.4	23.9	19 59.6
Sun.	31	342 5 46.1	349 15 51.1	N.4 50 13.7	N.4 32 12.2	24.9	20 51.1

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 1.				SUNDAY 3.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	20 15 11.04	S. 14 43 38.4	88.92	0	22 8 10.29	S. 6 5 58.1	122.84
1	20 17 34.47	14 34 44.9	89.90	1	22 10 29.49	5 53 41.0	123.23
2	20 19 57.80	14 25 45.5	90.86	2	22 12 48.62	5 41 21.6	123.61
3	20 22 21.05	14 16 40.4	91.81	3	22 15 7.70	5 28 59.9	123.98
4	20 24 44.19	14 7 29.5	92.76	4	22 17 26.71	5 16 36.1	124.33
5	20 27 7.24	13 58 13.0	93.69	5	22 19 45.67	5 4 10.1	124.66
6	20 29 30.20	13 48 50.9	94.61	6	22 22 4.56	4 51 42.1	124.98
7	20 31 53.06	13 39 23.3	95.52	7	22 24 23.41	4 39 12.2	125.29
8	20 34 15.82	13 29 50.1	96.42	8	22 26 42.20	4 26 40.5	125.58
9	20 36 38.49	13 20 11.6	97.32	9	22 29 0.94	4 14 7.0	125.86
10	20 39 1.06	13 10 27.7	98.20	10	22 31 19.63	4 1 31.8	126.13
11	20 41 23.53	13 0 38.5	99.07	11	22 33 38.27	3 48 55.0	126.38
12	20 43 45.91	12 50 44.1	99.93	12	22 35 56.87	3 36 16.8	126.61
13	20 46 8.19	12 40 44.5	100.77	13	22 38 15.42	3 23 37.1	126.83
14	20 48 30.37	12 30 39.9	101.61	14	22 40 33.93	3 10 56.1	127.04
15	20 50 52.45	12 20 30.2	102.44	15	22 42 52.40	2 58 13.9	127.23
16	20 53 14.43	12 10 15.6	103.26	16	22 45 10.83	2 45 30.5	127.40
17	20 55 36.32	11 59 56.0	104.06	17	22 47 29.22	2 32 46.1	127.57
18	20 57 58.12	11 49 31.7	104.85	18	22 49 47.57	2 20 0.7	127.72
19	21 0 19.81	11 39 2.6	105.64	19	22 52 5.90	2 7 14.4	127.85
20	21 2 41.41	11 28 28.7	106.41	20	22 54 24.19	1 54 27.3	127.97
21	21 5 2.92	11 17 50.3	107.17	21	22 56 42.45	1 41 39.4	128.07
22	21 7 24.33	11 7 7.3	107.91	22	22 59 0.69	1 28 51.0	128.16
23	21 9 45.64	S. 10 56 19.8	108.65	23	23 1 18.90	S. 1 16 2.0	128.24
SATURDAY 2.				MONDAY 4.			
0	21 12 6.86	S. 10 45 27.9	109.37	0	23 3 37.09	S. 1 3 12.6	128.29
1	21 14 27.99	10 34 31.7	110.08	1	23 5 55.26	0 50 22.9	128.33
2	21 16 49.02	10 23 31.2	110.78	2	23 8 13.41	0 37 32.9	128.36
3	21 19 9.97	10 12 26.6	111.46	3	23 10 31.54	0 24 42.7	128.38
4	21 21 30.82	10 1 17.8	112.13	4	23 12 49.65	S. 0 11 52.4	128.38
5	21 23 51.58	9 50 5.0	112.79	5	23 15 7.75	N. 0 0 57.8	128.36
6	21 26 12.25	9 38 48.3	113.44	6	23 17 25.84	0 13 48.0	128.33
7	21 28 32.83	9 27 27.6	114.07	7	23 19 43.92	0 26 38.0	128.29
8	21 30 53.33	9 16 3.2	114.70	8	23 22 1.99	0 39 27.7	128.23
9	21 33 13.74	9 4 35.0	115.31	9	23 24 20.05	0 52 17.1	128.15
10	21 35 34.06	8 53 3.2	115.90	10	23 26 38.11	1 5 6.0	128.07
11	21 37 54.30	8 41 27.7	116.49	11	23 28 56.16	1 17 54.4	127.96
12	21 40 14.45	8 29 48.8	117.06	12	23 31 14.21	1 30 42.2	127.84
13	21 42 34.52	8 18 6.5	117.61	13	23 33 32.26	1 43 29.3	127.71
14	21 44 54.51	8 6 20.8	118.15	14	23 35 50.31	1 56 15.5	127.56
15	21 47 14.43	7 54 31.9	118.68	15	23 38 8.37	2 9 0.9	127.40
16	21 49 34.26	7 42 39.8	119.20	16	23 40 26.44	2 21 45.3	127.22
17	21 51 54.02	7 30 44.5	119.70	17	23 42 44.51	2 34 28.6	127.03
18	21 54 13.70	7 18 46.3	120.19	18	23 45 2.59	2 47 10.8	126.82
19	21 56 33.31	7 6 45.1	120.67	19	23 47 20.68	2 59 51.7	126.60
20	21 58 52.84	6 54 41.1	121.13	20	23 49 38.78	3 12 31.3	126.37
21	22 1 12.31	6 42 34.3	121.58	21	23 51 56.89	3 25 9.5	126.12
22	22 3 31.71	6 30 24.8	122.02	22	23 54 15.02	3 37 46.2	125.85
23	22 5 51.03	6 18 12.7	122.44	23	23 56 33.17	3 50 21.3	125.57
24	22 8 10.29	S. 6 5 58.1		24	23 58 51.34	N. 4 2 54.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 5.				THURSDAY 7.			
0	^h 23 ^m 58 ^s 51.34	N. 4 2 54.7	125.28	0	^h 1 50 ^m 5.62	N. 13 6 8.7	95.70
1	0 1 9.53	4 15 26.4	124.97	1	1 52 25.74	13 15 42.9	94.80
2	0 3 27.74	4 27 56.2	124.64	2	1 54 45.90	13 25 11.7	93.90
3	0 5 45.97	4 40 24.0	124.31	3	1 57 6.10	13 34 35.1	92.98
4	0 8 4.23	4 52 49.9	123.96	4	1 59 26.33	13 43 53.0	92.06
5	0 10 22.51	5 5 13.6	123.59	5	2 1 46.61	13 53 5.3	91.13
6	0 12 40.82	5 17 35.1	123.21	6	2 4 6.92	14 2 12.1	90.18
7	0 14 59.16	5 29 54.4	122.82	7	2 6 27.27	14 11 13.2	89.23
8	0 17 17.53	5 42 11.3	122.41	8	2 8 47.64	14 20 8.6	88.28
9	0 19 35.92	5 54 25.8	121.99	9	2 11 8.05	14 28 58.2	87.32
10	0 21 54.35	6 6 37.8	121.56	10	2 13 28.50	14 37 42.1	86.34
11	0 24 12.81	6 18 47.1	121.11	11	2 15 48.98	14 46 20.1	85.35
12	0 26 31.31	6 30 53.8	120.64	12	2 18 9.48	14 54 52.2	84.36
13	0 28 49.84	6 42 57.6	120.17	13	2 20 30.01	15 3 18.4	83.36
14	0 31 8.41	6 54 58.6	119.68	14	2 22 50.57	15 11 38.5	82.36
15	0 33 27.01	7 6 56.7	119.18	15	2 25 11.15	15 19 52.7	81.34
16	0 35 45.65	7 18 51.8	118.66	16	2 27 31.76	15 28 0.7	80.32
17	0 38 4.34	7 30 43.7	118.13	17	2 29 52.38	15 36 2.7	79.30
18	0 40 23.06	7 42 32.5	117.59	18	2 32 13.02	15 43 58.5	78.27
19	0 42 41.82	7 54 18.0	117.03	19	2 34 33.68	15 51 48.1	77.23
20	0 45 0.62	8 6 0.2	116.46	20	2 36 54.36	15 59 31.4	76.18
21	0 47 19.46	8 17 39.0	115.88	21	2 39 15.06	16 7 8.5	75.13
22	0 49 38.35	8 29 14.3	115.29	22	2 41 35.76	16 14 39.3	74.07
23	0 51 57.29	N. 8 40 46.0	114.69	23	2 43 56.47	N. 16 22 3.7	73.01
WEDNESDAY 6.				FRIDAY 8.			
0	0 54 16.26	N. 8 52 14.1	114.07	0	2 46 17.19	N. 16 29 21.7	71.93
1	0 56 35.28	9 3 38.5	113.43	1	2 48 37.92	16 36 33.3	70.86
2	0 58 54.35	9 14 59.1	112.78	2	2 50 58.65	16 43 38.5	69.78
3	1 1 13.47	9 26 15.8	112.13	3	2 53 19.38	16 50 37.2	68.70
4	1 3 32.63	9 37 28.6	111.46	4	2 55 40.11	16 57 29.3	67.61
5	1 5 51.84	9 48 37.3	110.78	5	2 58 0.83	17 4 15.0	66.51
6	1 8 11.09	9 59 42.0	110.08	6	3 0 21.55	17 10 54.0	65.41
7	1 10 30.39	10 10 42.5	109.38	7	3 2 42.26	17 17 26.5	64.31
8	1 12 49.74	10 21 38.8	108.67	8	3 5 2.97	17 23 52.3	63.20
9	1 15 9.13	10 32 30.8	107.94	9	3 7 23.66	17 30 11.5	62.08
10	1 17 28.57	10 43 18.4	107.20	10	3 9 44.34	17 36 24.0	60.97
11	1 19 48.06	10 54 1.6	106.45	11	3 12 5.00	17 42 29.8	59.85
12	1 22 7.60	11 4 40.3	105.68	12	3 14 25.63	17 48 28.9	58.72
13	1 24 27.18	11 15 14.4	104.90	13	3 16 46.25	17 54 21.3	57.59
14	1 26 46.81	11 25 43.8	104.12	14	3 19 6.84	18 0 6.8	56.46
15	1 29 6.49	11 36 8.5	103.33	15	3 21 27.40	18 5 45.6	55.33
16	1 31 26.22	11 46 28.5	102.52	16	3 23 47.93	18 11 17.6	54.20
17	1 33 45.98	11 56 43.6	101.70	17	3 26 8.43	18 16 42.8	53.06
18	1 36 5.80	12 6 53.8	100.87	18	3 28 28.90	18 22 1.1	51.91
19	1 38 25.66	12 16 59.0	100.04	19	3 30 49.32	18 27 12.6	50.77
20	1 40 45.56	12 26 59.2	99.20	20	3 33 9.71	18 32 17.2	49.63
21	1 43 5.51	12 36 54.4	98.34	21	3 35 30.05	18 37 15.0	48.48
22	1 45 25.50	12 46 44.3	97.47	22	3 37 50.34	18 42 5.8	47.32
23	1 47 45.54	12 56 20.1	96.59	23	3 40 10.58	18 46 49.8	46.17
24	1 50 5.62	N. 13 6 8.7		24	3 42 30.78	N. 18 51 26.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 9.				MONDAY 11.			
0	h m s	N. 18° 51' 26.8"	45.02	0	h m s	N. 20 18 9.0	9.21
1	3 42 30.78	18 55 56.9	43.86	1	5 32 43.31	20 17 13.7	10.26
2	3 44 50.92	19 0 20.1	42.70	2	5 34 57.56	20 16 12.2	11.31
3	3 47 11.00	19 4 36.3	41.55	3	5 37 11.63	20 15 4.3	12.36
4	3 49 31.02	19 8 45.6	40.39	4	5 39 25.51	20 13 50.2	13.40
5	3 51 50.98	19 12 47.9	39.23	5	5 41 39.20	20 12 29.8	14.43
6	3 54 10.87	19 16 43.3	38.08	6	5 43 52.72	20 11 3.2	15.46
7	3 56 30.69	19 20 31.8	36.92	7	5 46 6.04	20 9 30.5	16.49
8	3 58 50.44	19 24 13.3	35.76	8	5 48 19.17	20 7 51.5	17.50
9	4 1 10.11	19 27 47.8	34.60	9	5 50 32.11	20 6 6.5	18.52
10	4 3 29.70	19 31 15.4	33.44	10	5 52 44.86	20 4 15.4	19.53
11	4 5 49.22	19 34 36.0	32.28	11	5 54 57.41	20 2 18.2	20.53
12	4 8 8.65	19 37 49.6	31.12	12	5 57 9.77	20 0 15.0	21.53
13	4 10 27.99	19 40 56.3	29.96	13	5 59 21.93	19 58 5.8	22.52
14	4 12 47.24	19 43 56.0	28.80	14	6 1 33.89	19 55 50.7	23.51
15	4 15 6.41	19 46 48.8	27.64	15	6 3 45.66	19 53 29.7	24.49
16	4 17 25.47	19 49 34.7	26.49	16	6 5 57.22	19 51 2.7	25.46
17	4 19 44.44	19 52 13.6	25.33	17	6 8 8.58	19 48 29.9	26.43
18	4 22 3.31	19 54 45.6	24.18	18	6 10 19.74	19 45 51.3	27.40
19	4 24 22.07	19 57 10.7	23.03	19	6 12 30.69	19 43 7.0	28.36
20	4 26 40.72	19 59 28.8	21.88	20	6 14 41.44	19 40 16.8	29.31
21	4 28 59.27	20 1 40.1	20.73	21	6 16 51.98	19 37 20.9	30.26
22	4 31 17.70	20 3 44.4	19.58	22	6 19 2.32	19 34 19.4	31.20
23	4 33 36.02	N. 20 5 41.9	18.43	23	6 21 12.45	N. 19 31 12.2	32.13
24	4 35 54.22				6 23 22.37		
SUNDAY 10.				TUESDAY 12.			
0	4 38 12.30	N. 20 7 32.5	17.29	0	6 25 32.09	N. 19 27 59.4	33.07
1	4 40 30.26	20 9 16.2	16.15	1	6 27 41.60	19 24 41.0	33.99
2	4 42 48.09	20 10 53.1	15.01	2	6 29 50.89	19 21 17.1	34.91
3	4 45 5.79	20 12 23.2	13.88	3	6 31 59.97	19 17 47.6	35.82
4	4 47 23.36	20 13 46.5	12.74	4	6 34 8.85	19 14 12.7	36.72
5	4 49 40.80	20 15 2.9	11.61	5	6 36 17.51	19 10 32.4	37.62
6	4 51 58.10	20 16 12.6	10.48	6	6 38 25.96	19 6 46.6	38.52
7	4 54 15.26	20 17 15.5	9.35	7	6 40 34.19	19 2 55.5	39.40
8	4 56 32.28	20 18 11.6	8.23	8	6 42 42.22	18 58 59.1	40.28
9	4 58 49.15	20 19 1.0	7.12	9	6 44 50.03	18 54 57.4	41.16
10	5 1 5.88	20 19 43.7	6.00	10	6 46 57.63	18 50 50.5	42.03
11	5 3 22.46	20 20 19.7	4.88	11	6 49 5.02	18 46 38.3	42.89
12	5 5 38.88	20 20 49.0	3.78	12	6 51 12.19	18 42 21.0	43.74
13	5 7 55.15	20 21 11.7	2.68	13	6 53 19.15	18 37 58.5	44.59
14	5 10 11.27	20 21 27.7	1.58	14	6 55 25.90	18 33 31.0	45.44
15	5 12 27.22	20 21 37.2	0.48	15	6 57 32.44	18 28 58.4	46.28
16	5 14 43.02	20 21 40.1	0.61	16	6 59 38.76	18 24 20.7	47.11
17	5 16 58.65	20 21 36.4	1.70	17	7 1 44.87	18 19 38.0	47.93
18	5 19 14.12	20 21 26.1	2.79	18	7 3 50.77	18 14 50.4	48.75
19	5 21 29.41	20 21 9.4	3.87	19	7 5 56.46	18 9 57.9	49.57
20	5 23 44.54	20 20 46.2	4.95	20	7 8 1.94	18 5 0.5	50.37
21	5 25 59.50	20 20 16.5	6.02	21	7 10 7.21	17 59 58.3	51.17
22	5 28 14.28	20 19 40.4	7.08	22	7 12 12.27	17 54 51.2	51.97
23	5 30 28.88	20 18 57.9	8.15	23	7 14 17.12	17 49 39.4	52.75
24	5 32 43.31	N. 20 18 9.0		24	7 16 21.75	N. 17 44 22.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
WEDNESDAY 13.				FRIDAY 15.			
0	7 ^h 16 ^m 21 ^s 75	N. 17° 44' 22".9	53".54	0	8 ^h 52 ^m 20 ^s 58	N. 12° 10' 26".0	83".95
1	7 18 26 18	17 39 1' 7	54".32	1	8 54 16 54	12 2 2' 3	84".43
2	7 20 30 41	17 33 35 8	55".09	2	8 56 12 37	11 53 35 7	84".92
3	7 22 34 43	17 28 5 3	55".85	3	8 58 8 07	11 45 6 2	85".40
4	7 24 38 24	17 22 30 2	56".61	4	9 0 3 64	11 36 33 8	85".87
5	7 26 41 84	17 16 50 5	57".36	5	9 1 59 09	11 27 58 6	86".34
6	7 28 45 25	17 11 6 4	58".11	6	9 3 54 41	11 19 20 5	86".80
7	7 30 48 45	17 5 17 8	58".85	7	9 5 49 62	11 10 39 7	87".26
8	7 32 51 44	16 59 24 7	59".58	8	9 7 44 71	11 1 56 2	87".71
9	7 34 54 23	16 53 27 2	60".30	9	9 9 39 68	10 53 9 9	88".16
10	7 36 56 83	16 47 25 4	61".03	10	9 11 34 55	10 44 21 0	88".60
11	7 38 59 22	16 41 19 2	61".74	11	9 13 29 30	10 35 29 4	89".03
12	7 41 1 41	16 35 8 8	62".44	12	9 15 23 94	10 26 35 2	89".46
13	7 43 3 41	16 28 54 2	63".14	13	9 17 18 48	10 17 38 5	89".88
14	7 45 5 21	16 22 35 3	63".84	14	9 19 12 92	10 8 39 2	90".30
15	7 47 6 81	16 16 12 2	64".53	15	9 21 7 25	9 59 37 4	90".71
16	7 49 8 23	16 9 45 0	65".21	16	9 23 1 49	9 50 33 2	91".12
17	7 51 9 45	16 3 13 8	65".89	17	9 24 55 64	9 41 26 5	91".52
18	7 53 10 47	15 56 38 4	66".56	18	9 26 49 69	9 32 17 4	91".91
19	7 55 11 31	15 49 59 0	67".23	19	9 28 43 65	9 23 5 9	92".30
20	7 57 11 96	15 43 15 7	67".89	20	9 30 37 53	9 13 52 1	92".69
21	7 59 12 43	15 36 28 3	68".54	21	9 32 31 32	9 4 36 0	93".07
22	8 1 12 70	15 29 37 1	69".19	22	9 34 25 03	8 55 17 6	93".44
23	8 3 12 80	N. 15° 22' 41".9	69".83	23	9 36 18 67	N. 8° 45' 57".0	93".81
THURSDAY 14.				SATURDAY 16.			
0	8 5 12 71	N. 15° 15' 43".0	70".46	0	9 38 12 22	N. 8° 36' 34".1	94".17
1	8 7 12 44	15 8 40 2	71".09	1	9 40 5 70	8 27 9 1	94".53
2	8 9 12 00	15 1 33 7	71".71	2	9 41 59 11	8 17 41 9	94".88
3	8 11 11 37	14 54 23 4	72".33	3	9 43 52 46	8 8 12 6	95".23
4	8 13 10 57	14 47 9 4	72".94	4	9 45 45 74	7 58 41 2	95".57
5	8 15 9 60	14 39 51 8	73".55	5	9 47 38 95	7 49 7 8	95".90
6	8 17 8 45	14 32 30 5	74".15	6	9 49 32 10	7 39 32 4	96".23
7	8 19 7 14	14 25 5 6	74".74	7	9 51 25 20	7 29 55 0	96".56
8	8 21 5 65	14 17 37 1	75".33	8	9 53 18 24	7 20 15 6	96".88
9	8 23 4 00	14 10 5 2	75".91	9	9 55 11 23	7 10 34 4	97".19
10	8 25 2 18	14 2 29 7	76".49	10	9 57 4 17	7 0 51 3	97".49
11	8 27 0 20	13 54 50 8	77".06	11	9 58 57 06	6 51 6 3	97".79
12	8 28 58 06	13 47 8 4	77".62	12	10 0 49 91	6 41 19 5	98".09
13	8 30 55 76	13 39 22 7	78".18	13	10 2 42 72	6 31 30 9	98".38
14	8 32 53 30	13 31 33 6	78".73	14	10 4 35 48	6 21 40 6	98".67
15	8 34 50 69	13 23 41 2	79".28	15	10 6 28 21	6 11 48 6	98".95
16	8 36 47 93	13 15 45 6	79".82	16	10 8 20 91	6 1 54 9	99".22
17	8 38 45 02	13 7 46 7	80".36	17	10 10 13 58	5 51 59 6	99".49
18	8 40 41 95	12 59 44 5	80".89	18	10 12 6 22	5 42 2 7	99".75
19	8 42 38 74	12 51 39 2	81".41	19	10 13 58 84	5 32 4 1	100".01
20	8 44 35 39	12 43 30 7	81".93	20	10 15 51 43	5 22 4 1	100".26
21	8 46 31 89	12 35 19 1	82".45	21	10 17 44 01	5 12 2 5	100".50
22	8 48 28 26	12 27 4 5	82".95	22	10 19 36 57	5 1 59 5	100".74
23	8 50 24 49	12 18 46 8	83".45	23	10 21 29 12	4 51 55 0	100".98
24	8 52 20 58	N. 12° 10' 26".0		24	10 23 21 65	N. 4° 41' 49".2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
SUNDAY 17.				TUESDAY 19.			
0	h m s	N. ° ' "	"	0	h m s	S. ° ' "	"
1	10 23 21.65	4 41 49.2	101.21	1	11 54 7.55	3 38 45.0	104.99
2	10 25 14.18	4 31 41.9	101.44	2	11 56 3.10	3 49 14.9	104.90
3	10 27 6.71	4 21 33.3	101.66	3	11 57 58.78	3 59 44.3	104.81
4	10 28 59.23	4 11 23.4	101.87	4	11 59 54.59	4 10 13.2	104.71
5	10 30 51.75	4 1 12.2	102.07	5	12 1 50.54	4 20 41.4	104.60
6	10 32 44.28	3 50 59.7	102.27	6	12 3 46.64	4 31 9.0	104.49
7	10 34 36.82	3 40 46.1	102.47	7	12 5 42.87	4 41 36.0	104.36
8	10 36 29.36	3 30 31.3	102.66	8	12 7 39.26	4 52 2.1	104.23
9	10 38 21.92	3 20 15.4	102.84	9	12 9 35.79	5 2 27.5	104.10
10	10 40 14.49	3 9 58.3	103.01	10	12 11 32.47	5 12 52.1	103.95
11	10 42 7.09	2 59 40.2	103.18	11	12 13 29.31	5 23 15.8	103.80
12	10 43 59.70	2 49 21.1	103.35	12	12 15 26.30	5 33 38.6	103.64
13	10 45 52.33	2 39 1.1	103.50	13	12 17 23.45	5 44 0.3	103.46
14	10 47 44.99	2 28 40.1	1.3.66	14	12 19 20.76	5 54 21.1	103.28
15	10 49 37.69	2 18 18.2	103.80	15	12 21 18.24	6 4 40.8	103.10
16	10 51 30.41	2 7 55.3	103.95	16	12 23 15.88	6 14 59.4	102.91
17	10 53 23.17	1 57 31.7	104.08	17	12 25 13.70	6 25 16.8	102.70
18	10 55 15.97	1 47 7.2	104.21	18	12 27 11.68	6 35 33.0	102.49
19	10 57 8.81	1 36 41.9	104.33	19	12 29 9.84	6 45 48.0	102.28
20	10 59 1.70	1 26 16.0	104.45	20	12 31 8.18	6 56 1.7	102.05
21	11 0 54.63	1 15 49.3	104.56	21	12 33 6.70	7 6 14.0	101.82
22	11 2 47.61	1 5 21.9	104.66	22	12 35 5.40	7 16 24.8	101.58
23	11 4 40.65	0 54 54.0	104.76	23	12 37 4.29	7 26 34.3	101.32
24	11 6 33.74	N. 0 44 25.4	104.85	24	12 39 3.35	S. 7 36 42.2	101.06
MONDAY 18.				WEDNESDAY 20.			
0	11 8 26.88	N. 0 33 56.3	104.94	0	12 41 2.61	S. 7 46 48.5	100.79
1	11 10 20.09	0 23 26.7	105.02	1	12 43 2.06	7 56 53.3	100.52
2	11 12 13.37	0 12 56.6	105.09	2	12 45 1.70	8 6 56.4	100.23
3	11 14 6.71	N. 0 2 26.0	105.15	3	12 47 1.54	8 16 57.8	99.94
4	11 16 0.13	S. 0 8 4.9	105.21	4	12 49 1.58	8 26 57.4	99.64
5	11 17 53.62	0 18 36.2	105.27	5	12 51 1.81	8 36 55.2	99.33
6	11 19 47.18	0 29 7.8	105.31	6	12 53 2.25	8 46 51.2	99.01
7	11 21 40.82	0 39 39.7	105.35	7	12 55 2.90	8 56 45.2	98.68
8	11 23 34.54	0 50 11.8	105.39	8	12 57 3.75	9 6 37.3	98.34
9	11 25 28.35	1 0 44.2	105.41	9	12 59 4.81	9 16 27.4	98.00
10	11 27 22.25	1 11 16.6	105.43	10	13 1 6.09	9 26 15.3	97.64
11	11 29 16.23	1 21 49.2	105.45	11	13 3 7.57	9 36 1.2	97.28
12	11 31 10.31	1 32 21.9	105.45	12	13 5 9.28	9 45 44.8	96.90
13	11 33 4.48	1 42 54.6	105.45	13	13 7 11.20	9 55 26.2	96.52
14	11 34 58.76	1 53 27.3	105.44	14	13 9 13.34	10 5 5.3	96.13
15	11 36 53.13	2 3 59.9	105.43	15	13 11 15.70	10 14 42.1	95.72
16	11 38 47.61	2 14 32.5	105.41	16	13 13 18.29	10 24 16.4	95.31
17	11 40 42.20	2 25 5.0	105.38	17	13 15 21.10	10 33 48.3	94.90
18	11 42 36.89	2 35 37.2	105.35	18	13 17 24.14	10 43 17.7	94.47
19	11 44 31.70	2 46 9.3	105.30	19	13 19 27.40	10 52 44.4	94.03
20	11 46 26.63	2 56 41.1	105.25	20	13 21 30.90	11 2 8.6	93.58
21	11 48 21.67	3 7 12.6	105.20	21	13 23 34.63	11 11 30.1	93.13
22	11 50 16.84	3 17 43.8	105.14	22	13 25 38.59	11 20 48.9	92.66
23	11 52 12.13	3 28 14.7	105.07	23	13 27 42.79	11 30 4.8	92.18
24	11 54 7.55	S. 3 38 45.0		24	13 29 47.22	S. 11 39 17.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 21.				SATURDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	13 29 47.22	S. 11 39 17.9	91.70	0	15 14 16.60	S. 17 46 50.6	56.98
1	13 31 51.89	11 48 28.1	91.20	1	15 16 33.44	17 52 32.5	56.02
2	13 33 56.81	11 57 35.3	90.70	2	15 18 50.53	17 58 8.6	55.06
3	13 36 1.96	12 6 39.5	90.19	3	15 21 7.86	18 3 39.0	54.08
4	13 38 7.36	12 15 40.7	89.65	4	15 23 25.42	18 9 3.5	53.10
5	13 40 13.00	12 24 38.6	89.13	5	15 25 43.22	18 14 22.1	52.10
6	13 42 18.88	12 33 33.4	88.59	6	15 28 1.26	18 19 34.7	51.10
7	13 44 25.02	12 42 25.0	88.04	7	15 30 19.53	18 24 41.3	50.10
8	13 46 31.40	12 51 13.2	87.48	8	15 32 38.03	18 29 41.9	49.08
9	13 48 38.02	12 59 58.1	86.90	9	15 34 56.75	18 34 36.4	48.05
10	13 50 44.90	13 8 39.5	86.32	10	15 37 15.70	18 39 24.7	47.02
11	13 52 52.03	13 17 17.4	85.73	11	15 39 34.88	18 44 6.8	45.97
12	13 54 59.41	13 25 51.8	85.14	12	15 41 54.28	18 48 42.6	44.92
13	13 57 7.05	13 34 22.6	84.53	13	15 44 13.90	18 53 12.1	43.86
14	13 59 14.94	13 42 49.8	83.91	14	15 46 33.73	18 57 35.3	42.80
15	14 1 23.09	13 51 13.2	83.28	15	15 48 53.78	19 1 52.1	41.72
16	14 3 31.49	13 59 32.9	82.64	16	15 51 14.03	19 6 2.4	40.64
17	14 5 40.15	14 7 48.7	81.99	17	15 53 34.50	19 10 6.2	39.55
18	14 7 49.07	14 16 0.6	81.33	18	15 55 55.17	19 14 3.5	38.45
19	14 9 58.24	14 24 8.6	80.65	19	15 58 16.04	19 17 54.2	37.35
20	14 12 7.67	14 32 12.5	79.97	20	16 0 37.11	19 21 38.3	36.24
21	14 14 17.36	14 40 12.3	79.28	21	16 2 58.38	19 25 15.7	35.12
22	14 16 27.31	14 48 8.0	78.58	22	16 5 19.84	19 28 46.4	34.00
23	14 18 37.52	S. 14 55 59.5	77.87	23	16 7 41.49	S. 19 32 10.4	32.87
FRIDAY 22.				SUNDAY 24.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	14 20 47.99	S. 15 3 46.7	77.16	0	16 10 3.33	S. 19 35 27.6	31.73
1	14 22 58.72	15 11 29.6	76.43	1	16 12 25.35	19 38 38.0	30.58
2	14 25 9.70	15 19 8.2	75.69	2	16 14 47.55	19 41 41.5	29.43
3	14 27 20.95	15 26 42.3	74.94	3	16 17 9.94	19 44 38.1	28.28
4	14 29 32.46	15 34 11.9	74.18	4	16 19 32.49	19 47 27.8	27.12
5	14 31 44.23	15 41 37.0	73.41	5	16 21 55.22	19 50 10.4	25.95
6	14 33 56.25	15 48 57.5	72.63	6	16 24 18.11	19 52 46.1	24.77
7	14 36 8.54	15 56 13.3	71.84	7	16 26 41.16	19 55 14.8	23.59
8	14 38 21.09	16 3 24.4	71.05	8	16 29 4.38	19 57 36.3	22.41
9	14 40 33.89	16 10 30.6	70.24	9	16 31 27.75	19 59 50.7	21.22
10	14 42 46.95	16 17 32.1	69.42	10	16 33 51.26	20 1 58.0	20.02
11	14 45 0.28	16 24 28.6	68.59	11	16 36 14.93	20 3 58.2	18.82
12	14 47 13.86	16 31 20.1	67.75	12	16 38 38.75	20 5 51.1	17.62
13	14 49 27.70	16 38 6.6	66.90	13	16 41 2.71	20 7 36.8	16.41
14	14 51 41.79	16 44 48.0	66.05	14	16 43 26.80	20 9 15.3	15.20
15	14 53 56.13	16 51 24.3	65.18	15	16 45 51.02	20 10 46.5	13.98
16	14 56 10.74	16 57 55.4	64.31	16	16 48 15.37	20 12 10.4	12.76
17	14 58 25.59	17 4 21.3	63.42	17	16 50 39.85	20 13 27.0	11.53
18	15 0 40.70	17 10 41.8	62.53	18	16 53 4.44	20 14 36.2	10.30
19	15 2 56.06	17 16 57.0	61.63	19	16 55 29.15	20 15 38.0	9.07
20	15 5 11.67	17 23 6.8	60.72	20	16 57 53.97	20 16 32.4	7.83
21	15 7 27.53	17 29 11.1	59.80	21	17 0 18.90	20 17 19.4	6.59
22	15 9 43.64	17 35 9.9	58.86	22	17 2 43.93	20 17 58.9	5.35
23	15 12 0.00	17 41 3.0	57.92	23	17 5 9.06	20 18 31.0	4.10
24	15 14 16.60	S. 17 46 50.6	-	24	17 7 34.28	S. 20 18 55.6	-

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 25.				WEDNESDAY 27.			
0	h m s	S. 20 18 55.6	2.85	0	h m s	S. 18 11 23.1	56.43
1	17 7 34.28	20 19 12.7	1.60	1	19 6 37.01	18 5 44.5	57.58
2	17 12 24.99	20 19 22.3	0.35	2	19 9 1.67	17 59 59.1	58.72
3	17 14 50.47	20 19 24.4	0.90	3	19 11 26.23	17 54 6.8	59.85
4	17 17 16.02	20 19 19.0	2.16	4	19 13 50.68	17 48 7.6	60.98
5	17 19 41.65	20 19 6.1	3.42	5	19 16 15.03	17 42 1.8	62.10
6	17 22 7.34	20 18 45.6	4.68	6	19 18 39.28	17 35 49.2	63.21
7	17 24 33.10	20 18 17.5	5.94	7	19 21 3.41	17 29 29.9	64.32
8	17 26 58.92	20 17 41.8	7.20	8	19 23 27.43	17 23 4.0	65.42
9	17 29 24.79	20 16 58.6	8.46	9	19 25 51.34	17 16 31.4	66.51
10	17 31 50.71	20 16 7.8	9.72	10	19 28 15.14	17 9 52.4	67.60
11	17 34 16.68	20 15 9.5	10.99	11	19 30 38.81	17 3 6.8	68.68
12	17 36 42.69	20 14 3.5	12.26	12	19 33 2.36	16 56 14.7	69.75
13	17 39 8.74	20 12 50.0	13.52	13	19 35 25.79	16 49 16.2	70.81
14	17 41 34.83	20 11 28.8	14.78	14	19 37 49.10	16 42 11.4	71.87
15	17 44 0.94	20 10 0.1	16.05	15	19 40 12.29	16 35 0.2	72.91
16	17 46 27.08	20 8 23.8	17.31	16	19 42 35.35	16 27 42.7	73.95
17	17 48 53.23	20 6 39.9	18.58	17	19 44 58.28	16 20 19.0	74.98
18	17 51 19.41	20 4 48.5	19.84	18	19 47 21.08	16 12 49.1	76.00
19	17 53 45.60	20 2 49.4	21.10	19	19 49 43.76	16 5 13.2	77.02
20	17 56 11.79	20 0 42.8	22.36	20	19 52 6.30	15 57 31.1	78.02
21	17 58 37.99	19 58 28.6	23.62	21	19 54 28.71	15 49 43.0	79.02
22	18 1 4.19	19 56 6.9	24.88	22	19 56 50.99	15 41 48.9	80.00
23	18 3 30.38	S. 19 53 37.6	26.13	23	19 59 13.13	S. 15 33 48.9	80.97
TUESDAY 26.				THURSDAY 28.			
0	18 5 56.56	S. 19 51 0.8	27.39	0	20 1 35.13	S. 15 25 43.1	81.94
1	18 8 22.73	19 48 16.5	28.64	1	20 3 57.00	15 17 31.5	82.90
2	18 10 48.88	19 45 24.6	29.89	2	20 6 18.73	15 9 14.1	83.85
3	18 13 15.01	19 42 25.3	31.14	3	20 8 40.33	15 0 51.0	84.79
4	18 15 41.11	19 39 18.4	32.38	4	20 11 1.79	14 52 22.3	85.72
5	18 18 7.18	19 36 4.1	33.62	5	20 13 23.11	14 43 47.9	86.64
6	18 20 33.23	19 32 42.4	34.86	6	20 15 44.29	14 35 8.1	87.55
7	18 22 59.23	19 29 13.2	36.10	7	20 18 5.34	14 26 22.8	88.45
8	18 25 25.20	19 25 36.6	37.33	8	20 20 26.24	14 17 32.1	89.35
9	18 27 51.12	19 21 52.7	38.56	9	20 22 47.01	14 8 36.0	90.23
10	18 30 16.99	19 18 1.3	39.78	10	20 25 7.63	13 59 34.6	91.10
11	18 32 42.81	19 14 2.6	41.01	11	20 27 28.12	13 50 28.0	91.96
12	18 35 8.57	19 9 56.6	42.22	12	20 29 48.47	13 41 16.2	92.81
13	18 37 34.28	19 5 43.3	43.43	13	20 32 8.68	13 31 59.3	93.65
14	18 39 59.92	19 1 22.7	44.64	14	20 34 28.76	13 22 37.4	94.49
15	18 42 25.50	18 56 54.8	45.84	15	20 36 48.69	13 13 10.5	95.31
16	18 44 51.01	18 52 19.8	47.04	16	20 39 8.49	13 3 38.6	96.12
17	18 47 16.45	18 47 37.5	48.23	17	20 41 28.15	12 54 1.9	96.92
18	18 49 41.81	18 42 48.1	49.42	18	20 43 47.67	12 44 20.4	97.71
19	18 52 7.10	18 37 51.6	50.61	19	20 46 7.06	12 34 34.1	98.49
20	18 54 32.30	18 32 47.9	51.79	20	20 48 26.31	12 24 43.2	99.26
21	18 56 57.42	18 27 37.2	52.97	21	20 50 45.43	12 14 47.6	100.02
22	18 59 22.46	18 22 19.5	54.13	22	20 53 4.41	12 4 47.5	100.77
23	19 1 47.40	18 16 54.8	55.28	23	20 55 23.26	11 54 42.9	101.51
24	19 4 12.25	S. 18 11 23.1		24	20 57 41.97	S. 11 44 33.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 29.				SATURDAY 30.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	20 57 41.97	S. 11 44 33.8	102.23	0	21 52 34.73	S. 7 21 47.5	116.23
1	21 0 0.55	11 34 20.4	102.94	1	21 54 50.59	7 10 10.1	116.66
2	21 2 19.01	11 24 2.8	103.64	2	21 57 6.36	6 58 30.2	117.09
3	21 4 37.33	11 13 40.9	104.33	3	21 59 22.03	6 46 47.6	117.50
4	21 6 55.52	11 3 14.9	105.02	4	22 1 37.63	6 35 2.6	117.90
5	21 9 13.59	10 52 44.8	105.69	5	22 3 53.14	6 23 15.3	118.29
6	21 11 31.54	10 42 10.7	106.34	6	22 6 8.56	6 11 25.5	118.66
7	21 13 49.35	10 31 32.6	106.99	7	22 8 23.91	5 59 33.5	119.03
8	21 16 7.05	10 20 50.7	107.63	8	22 10 39.18	5 47 39.4	119.38
9	21 18 24.63	10 10 4.9	108.25	9	22 12 54.38	5 35 43.1	119.72
10	21 20 42.08	9 59 15.4	108.87	10	22 15 9.50	5 23 44.8	120.04
11	21 22 59.41	9 48 22.2	109.47	11	22 17 24.55	5 11 44.6	120.36
12	21 25 16.63	9 37 25.3	110.06	12	22 19 39.54	4 59 42.4	120.66
13	21 27 33.73	9 26 25.0	110.64	13	22 21 54.46	4 47 38.4	120.95
14	21 29 50.72	9 15 21.1	111.20	14	22 24 9.32	4 35 32.7	121.23
15	21 32 7.59	9 4 13.9	111.76	15	22 26 24.12	4 23 25.3	121.49
16	21 34 24.36	8 53 3.4	112.30	16	22 28 38.86	4 11 16.4	121.75
17	21 36 41.02	8 41 49.6	112.83	17	22 30 53.54	3 59 5.9	121.99
18	21 38 57.57	8 30 32.6	113.35	18	22 33 8.17	3 46 54.0	122.22
19	21 41 14.01	8 19 12.4	113.86	19	22 35 22.75	3 34 40.7	122.43
20	21 43 30.35	8 7 49.3	114.36	20	22 37 37.29	3 22 26.1	122.63
21	21 45 46.59	7 56 23.1	114.84	21	22 39 51.77	3 10 10.3	122.82
22	21 48 2.73	7 44 54.1	115.32	22	22 42 6.22	2 57 53.4	123.00
23	21 50 18.78	7 33 22.2	115.78	23	22 44 20.62	2 45 35.4	123.17
24	21 52 34.73	S. 7 21 47.5		24	22 46 34.98	S. 2 33 16.4	

PHASES OF THE MOON.

●	New Moon	- - - - -	d h m
☾	First Quarter	- - - - -	13 12 9.0
○	Full Moon	- - - - -	21 13 18.8
☾	Last Quarter	- - - - -	28 16 34.3

☾	Perigee	- - - - -	d h
☾	Apogee	- - - - -	15 14
☾	Perigee	- - - - -	30 23

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	Saturn W.	107 23 18	2239	109 10 48	2230	110 58 31	2221	112 46 27	2214
	Jupiter W.	65 38 52	2221	67 26 48	2212	69 14 58	2202	71 3 22	2194
	Antares W.	58 34 3	2275	57 20 39	2265	59 7 30	2254	60 54 37	2245
	Venus E.	41 33 12	2682	39 56 8	2676	38 18 56	2671	36 41 37	2667
	α Pegasi E.	49 43 51	2511	48 2 53	2519	46 22 6	2528	44 41 31	2539
2	SUN E.	69 25 3	2554	67 45 5	2544	66 4 53	2535	64 24 29	2526
	Jupiter W.	80 8 25	2156	81 57 59	2149	83 47 44	2142	85 37 39	2136
	Antares W.	69 53 34	2202	71 41 59	2195	73 30 34	2188	75 19 20	2182
	Venus E.	28 34 9	2666	26 56 43	2672	25 19 25	2681	23 42 19	2693
	SUN E.	55 59 26	2486	54 17 53	2479	52 36 10	2472	50 54 17	2467
3	Jupiter W.	94 49 19	2112	96 39 59	2109	98 30 45	2105	100 21 36	2103
	Antares W.	84 25 19	2157	86 14 52	2153	88 4 30	2150	89 54 13	2148
	SUN E.	42 23 2	2443	40 40 28	2440	38 57 51	2438	37 15 11	2437
8	SUN W.	25 15 37	2756	26 51 2	2771	28 26 8	2786	30 0 54	2802
	Pollux E.	67 17 49	2512	65 36 53	2532	63 56 24	2551	62 16 21	2570
	Regulus E.	103 47 2	2432	102 4 13	2449	100 21 48	2464	98 39 44	2481
9	SUN W.	37 49 28	2886	39 22 5	2903	40 54 20	2920	42 26 13	2938
	Pollux E.	54 3 6	2678	52 25 56	2701	50 49 17	2724	49 13 9	2749
	Regulus E.	90 15 13	2564	88 35 28	2581	86 56 7	2598	85 17 9	2615
10	SUN W.	50 0 2	3026	51 29 42	3044	52 59 0	3061	54 27 57	3078
	Pollux E.	41 20 56	2885	39 48 18	2916	38 16 20	2949	36 45 3	2984
	Regulus E.	77 8 8	2701	75 31 29	2717	73 55 12	2734	72 19 17	2750
11	SUN W.	61 47 33	3161	63 14 29	3177	64 41 6	3192	66 7 25	3207
	Aldebaran W.	15 51 19	2920	17 23 12	2917	18 55 10	2917	20 27 8	2920
	Pollux E.	29 20 33	3204	27 54 28	3263	26 29 33	3328	25 5 54	3403
	Regulus E.	64 25 4	2831	62 51 16	2846	61 17 48	2861	59 44 39	2876
	Saturn E.	110 41 8	2802	109 6 43	2817	107 32 37	2831	105 58 49	2845
12	SUN W.	73 14 38	3278	74 39 16	3290	76 3 40	3303	77 27 48	3314
	Aldebaran W.	28 5 24	2953	29 36 36	2961	31 7 37	2969	32 38 28	2978
	Regulus E.	52 3 38	2948	50 32 20	2961	49 1 18	2974	47 30 33	2987
	Saturn E.	98 14 5	2908	96 41 56	2920	95 10 2	2931	93 38 23	2942
	Spica E.	105 44 8	2913	104 12 5	2925	102 40 18	2936	101 8 45	2948
13	SUN W.	84 25 16	3367	85 48 10	3376	87 10 54	3385	88 33 28	3393
	Aldebaran W.	40 10 6	3018	41 39 56	3025	43 9 38	3032	44 39 11	3039
	Regulus E.	40 0 46	3049	38 31 34	3061	37 2 37	3074	35 33 55	3086
	Saturn E.	86 3 25	2991	84 33 1	2999	83 2 47	3008	81 32 44	3015
	Spica E.	93 34 21	2997	92 4 4	3006	90 33 58	3013	89 4 1	3020
14	SUN W.	95 24 12	3425	96 46 0	3430	98 7 42	3435	99 29 19	3439
	Aldebaran W.	52 5 4	3065	53 33 56	3070	55 2 42	3073	56 31 25	3077
	Saturn E.	74 4 40	3047	72 35 25	3052	71 6 17	3057	69 37 15	3061
	Spica E.	81 36 25	3051	80 7 16	3056	78 38 12	3060	77 9 13	3063
	Jupiter E.	115 50 19	3018	114 20 29	3022	112 50 44	3026	111 21 3	3030
15	SUN W.	106 16 30	3451	107 37 49	3452	108 59 7	3452	110 20 25	3452
	Aldebaran W.	63 54 8	3086	65 22 35	3087	66 51 1	3087	68 19 27	3086
	Pollux W.	23 53 3	3624	25 11 11	3567	26 30 21	3520	27 50 23	3479

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
1	Saturn W.	114 34 33	2206	116 22 51	2199	118 11 20	2192	119 59 59	2186
	Jupiter W.	72 51 58	2186	74 40 47	2178	76 29 48	2170	78 19 1	2163
	Antares W.	62 41 58	2235	64 29 33	2226	66 17 21	2218	68 5 21	2210
	Venus E.	35 4 13	2663	33 26 44	2661	31 49 12	2661	30 11 40	2662
	α Pegasi E.	43 1 12	2554	41 21 13	2572	39 41 40	2594	38 2 37	2621
	Sun E.	62 43 52	2517	61 3 2	2509	59 22 1	2501	57 40 49	2493
2	Jupiter W.	87 27 43	2130	89 17 56	2126	91 8 16	2120	92 58 44	2116
	Antares W.	77 8 15	2176	78 57 19	2170	80 46 32	2165	82 35 52	2161
	Venus E.	22 5 30	2711	20 29 5	2737	18 53 14	2772	17 18 9	2819
	Sun E.	49 12 17	2460	47 30 8	2455	45 47 52	2451	44 5 30	2447
3	Jupiter W.	102 12 30	2101	104 3 28	2100	105 54 27	2099	107 45 28	2098
	Antares W.	91 43 59	2146	93 33 48	2145	95 23 39	2144	97 13 31	2144
	Sun E.	35 32 29	2436	33 49 45	2436	32 7 1	2437	30 24 19	2438
8	Sun W.	31 35 19	2818	33 9 24	2835	34 43 7	2852	36 16 28	2868
	Pollux E.	60 36 45	2590	58 57 37	2611	57 18 57	2633	55 40 47	2655
	Regulus E.	96 58 4	2497	95 16 46	2514	93 35 52	2530	91 55 20	2548
9	Sun W.	43 57 43	2956	45 28 51	2974	46 59 37	2992	48 30 0	3009
	Pollux E.	47 37 34	2774	46 2 32	2800	44 28 4	2828	42 54 12	2856
	Regulus E.	83 38 35	2632	82 0 24	2649	80 22 36	2666	78 45 11	2683
10	Sun W.	55 56 33	3096	57 24 48	3112	58 52 43	3128	60 20 18	3145
	Pollux E.	35 14 30	3021	33 44 43	3061	32 15 46	3104	30 47 41	3151
	Regulus E.	70 43 43	2767	69 8 32	2782	67 33 41	2799	65 59 12	2815
11	Sun W.	67 33 26	3222	68 59 9	3236	70 24 35	3250	71 49 45	3264
	Aldebaran W.	21 59 2	2924	23 30 50	2930	25 2 31	2938	26 34 2	2945
	Pollux E.	23 43 41	3490	22 23 6	3592	21 4 23	3714	19 47 50	3861
	Regulus E.	58 11 50	2891	56 39 20	2905	55 7 8	2920	53 35 14	2934
	Saturn E.	104 25 19	2857	102 52 5	2871	101 19 9	2884	99 46 29	2896
12	Sun W.	78 51 43	3326	80 15 25	3337	81 38 54	3347	83 2 11	3358
	Aldebaran W.	34 9 8	2986	35 39 38	2995	37 9 57	3003	38 40 6	3010
	Regulus E.	46 0 4	3000	44 29 51	3013	42 59 54	3025	41 30 12	3038
	Saturn E.	92 6 58	2953	90 35 46	2963	89 4 47	2973	87 34 0	2982
	Spica E.	99 37 27	2958	98 6 22	2969	96 35 30	2978	95 4 50	2987
13	Sun W.	89 55 53	3400	91 18 9	3407	92 40 18	3414	94 2 18	3420
	Aldebaran W.	46 8 35	3044	47 37 53	3051	49 7 3	3056	50 36 6	3061
	Regulus E.	34 5 28	3097	32 37 15	3110	31 9 18	3124	29 41 37	3137
	Saturn E.	80 2 50	3023	78 33 6	3029	77 3 29	3036	75 34 1	3042
	Spica E.	87 34 13	3028	86 4 35	3034	84 35 4	3040	83 5 41	3046
14	Sun W.	100 50 52	3442	102 12 21	3445	103 33 46	3447	104 55 9	3449
	Aldebaran W.	58 0 3	3079	59 28 38	3082	60 57 10	3083	62 25 40	3085
	Saturn E.	68 8 17	3065	66 39 24	3068	65 10 36	3070	63 41 50	3073
	Spica E.	75 40 18	3067	74 11 28	3069	72 42 41	3072	71 13 57	3073
	Jupiter E.	109 51 27	3033	108 21 55	3036	106 52 27	3037	105 23 0	3039
15	Sun W.	111 41 43	3451	113 3 2	3450	114 24 22	3448	115 45 44	3446
	Aldebaran W.	69 47 54	3086	71 16 21	3085	72 44 49	3083	74 13 20	3081
	Pollux W.	29 11 11	3442	30 32 40	3410	31 54 45	3382	33 17 22	3351

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
15	Saturn E.	62 13 8	3076	60 44 29	3077	59 15 51	3078	57 47 15	3079
	Spica E.	69 45 15	3074	68 16 34	3075	66 47 54	3076	65 19 15	3076
	Jupiter E.	103 53 36	3040	102 24 13	3041	100 54 51	3042	99 25 30	3041
16	Sun W.	117 7 8	3444	118 28 35	3441	119 50 5	3438	121 11 39	3433
	Aldebaran W.	75 41 53	3078	77 10 29	3075	78 39 9	3072	80 7 53	3069
	Pollux W.	34 40 28	3334	36 4 0	3313	37 27 57	3294	38 52 16	3276
	Saturn E.	50 24 24	3079	48 55 49	3078	47 27 13	3077	45 58 35	3075
	Spica E.	57 55 47	3069	56 26 59	3066	54 58 8	3063	53 29 13	3059
	Jupiter E.	91 58 28	3034	90 28 57	3031	88 59 22	3028	87 29 44	3024
17	Sun W.	128 0 45	3408	129 22 52	3402	130 45 6	3395	132 7 28	3388
	Pollux W.	45 58 41	3200	47 24 51	3187	48 51 16	3173	50 17 57	3161
	Saturn E.	38 34 59	3067	37 6 9	3066	35 37 18	3065	34 8 25	3064
	Spica E.	46 3 22	3036	44 33 54	3030	43 4 19	3024	41 34 36	3018
	Jupiter E.	80 0 15	3000	78 30 2	2995	76 59 43	2988	75 29 15	2982
	Antares E.	91 33 59	3061	90 5 2	3056	88 35 59	3050	87 6 48	3043
18	Pollux W.	57 35 6	3100	59 3 16	3088	60 31 40	3077	62 0 18	3065
	Regulus W.	20 34 51	3146	22 2 5	3118	23 29 53	3092	24 58 12	3070
	Spica E.	34 3 54	2981	32 33 18	2973	31 2 32	2965	29 31 35	2956
	Jupiter E.	67 54 51	2945	66 23 29	2937	64 51 57	2929	63 20 15	2920
	Antares E.	79 38 50	3008	78 8 47	3000	76 38 34	2993	75 8 12	2984
19	Pollux W.	69 27 5	3007	70 57 9	2995	72 27 28	2984	73 58 1	2973
	Regulus W.	32 25 56	2981	33 56 33	2966	35 27 28	2951	36 58 42	2937
	Jupiter E.	55 38 55	2875	54 6 4	2864	52 32 59	2855	50 59 43	2845
	Antares E.	67 33 42	2941	66 2 15	2932	64 30 37	2923	62 58 47	2914
20	Pollux W.	81 34 18	2916	83 6 16	2905	84 38 28	2894	86 10 54	2883
	Regulus W.	44 39 12	2871	46 12 8	2859	47 45 20	2846	49 18 48	2834
	Jupiter E.	43 10 3	2794	41 35 27	2784	40 0 38	2773	38 25 34	2763
	Antares E.	55 16 46	2869	53 43 47	2860	52 10 37	2852	50 37 16	2843
	α Aquilæ E.	106 39 8	3270	105 14 21	3253	103 49 14	3236	102 23 47	3220
21	Pollux W.	93 56 30	2831	95 30 17	2821	97 4 17	2811	98 38 31	2801
	Regulus W.	57 10 5	2774	58 45 7	2763	60 20 23	2751	61 55 55	2741
	Jupiter E.	30 26 49	2710	28 50 22	2699	27 13 41	2689	25 36 47	2678
	Antares E.	42 47 48	2804	41 13 25	2797	39 38 53	2791	38 4 14	2785
	α Aquilæ E.	95 12 9	3151	93 45 1	3139	92 17 39	3127	90 50 2	3117
22	Regulus W.	69 57 14	2686	71 34 13	2675	73 11 26	2665	74 48 53	2655
	Saturn W.	24 47 32	2759	26 22 54	2736	27 58 47	2715	29 35 7	2696
	Spica W.	15 57 53	2663	17 35 23	2653	19 13 6	2643	20 51 3	2633
	α Aquilæ E.	83 29 0	3073	82 0 17	3066	80 31 25	3060	79 2 26	3055
	Mars E.	115 37 40	2957	114 6 34	2946	112 35 13	2935	111 3 39	2924
23	Regulus W.	82 59 28	2607	84 38 14	2597	86 17 13	2588	87 56 25	2580
	Saturn W.	37 42 34	2619	39 21 3	2606	40 59 49	2593	42 38 53	2582
	Spica W.	29 4 6	2585	30 43 21	2576	32 22 49	2567	34 2 29	2559
	α Aquilæ E.	71 36 18	3042	70 6 57	3043	68 37 38	3044	67 8 20	3047
	Pomalhaut E.	100 20 42	3072	98 51 59	3058	97 22 58	3046	95 53 43	3035
	Mars E.	103 22 18	2871	101 49 22	2861	100 16 13	2851	98 42 51	2841
	Regulus W.	96 15 19	2538	97 55 40	2530	99 36 11	2522	101 16 54	2514

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
15	Saturn E.	56 18 40	3080	54 50 6	3081	53 21 33	3080	51 52 59	3079
	Spica E.	63 50 36	3075	62 21 56	3074	60 53 15	3073	59 24 32	3071
	Jupiter E.	97 56 8	3041	96 26 46	3039	94 57 22	3038	93 27 56	3036
16	Sun W.	122 33 18	3429	123 55 1	3424	125 16 50	3420	126 38 44	3414
	Aldebaran W.	81 36 41	3065	83 5 33	3060	84 34 32	3056	86 3 36	3051
	Pollux W.	40 16 55	3259	41 41 54	3243	43 7 13	3228	44 32 48	3214
	Saturn E.	44 29 55	3074	43 1 14	3073	41 32 31	3071	40 3 46	3069
	Spica E.	52 0 13	3056	50 31 9	3051	49 1 59	3047	47 32 44	3041
	Jupiter E.	86 0 1	3020	84 30 13	3016	83 0 20	3010	81 30 20	3006
17	Sun W.	133 29 58	3381	134 52 36	3373	136 15 23	3366	137 38 18	3358
	Pollux W.	51 44 53	3148	53 12 4	3136	54 39 30	3124	56 7 11	3112
	Saturn E.	32 39 32	3063	31 10 37	3064	29 41 44	3065	28 12 51	3067
	Spica E.	40 4 45	3011	38 34 46	3004	37 4 38	2997	35 34 21	2989
	Jupiter E.	73 58 40	2975	72 27 56	2969	70 57 4	2961	69 26 2	2954
	Antares E.	85 37 29	3037	84 8 2	3030	82 38 27	3023	81 8 43	3016
18	Pollux W.	63 29 11	3053	64 58 18	3041	66 27 40	3030	67 57 15	3018
	Regulus W.	26 26 58	3050	27 56 9	3031	29 25 44	3014	30 55 40	2997
	Spica E.	28 0 27	2948	26 29 9	2939	24 57 39	2929	23 25 57	2920
	Jupiter E.	61 48 22	2912	60 16 18	2902	58 44 2	2894	57 11 35	2884
	Antares E.	73 37 39	2976	72 6 56	2967	70 36 2	2959	69 4 58	2950
19	Pollux W.	75 28 48	2962	76 59 49	2950	78 31 4	2939	80 2 34	2928
	Regulus W.	38 30 14	2923	40 2 3	2910	41 34 9	2897	43 6 32	2884
	Jupiter E.	49 26 13	2835	47 52 31	2825	46 18 35	2815	44 44 26	2804
	Antares E.	61 26 46	2905	59 54 33	2896	58 22 9	2887	56 49 33	2878
20	Pollux W.	87 43 34	2873	89 16 27	2863	90 49 34	2852	92 22 55	2841
	Regulus W.	50 52 32	2821	52 26 32	2809	54 0 48	2798	55 35 19	2786
	Jupiter E.	36 50 17	2752	35 14 46	2741	33 39 1	2731	32 3 2	2720
	Antares E.	49 3 43	2835	47 30 0	2826	45 56 6	2818	44 22 2	2811
	α Aquilæ E.	100 58 2	3205	99 31 59	3191	98 5 39	3177	96 39 2	3163
21	Pollux W.	100 12 57	2792	101 47 35	2783	103 22 25	2773	104 57 28	2765
	Regulus W.	63 31 41	2729	65 7 43	2718	66 43 59	2707	68 20 29	2696
	Jupiter E.	23 59 38	2669	22 22 16	2658	20 44 40	2649	19 6 51	2638
	Antares E.	36 29 27	2781	34 54 34	2777	33 19 36	2774	31 44 34	2772
	α Aquilæ E.	89 22 13	3106	87 54 11	3097	86 25 58	3088	84 57 34	3080
22	Regulus W.	76 26 33	2645	78 4 27	2635	79 42 34	2625	81 20 55	2616
	Saturn W.	31 11 52	2678	32 49 1	2662	34 26 32	2647	36 4 23	2632
	Spica W.	22 29 13	2623	24 7 37	2613	25 46 14	2604	27 25 3	2594
	α Aquilæ E.	77 33 21	3051	76 4 11	3047	74 34 56	3044	73 5 38	3043
	Mars E.	109 31 50	2913	107 59 48	2902	106 27 31	2891	104 55 1	2881
23	Regulus W.	89 35 48	2571	91 15 23	2562	92 55 10	2553	94 35 9	2545
	Saturn W.	44 18 12	2570	45 57 48	2560	47 37 38	2550	49 17 42	2539
	Spica W.	35 42 21	2550	37 22 25	2541	39 2 41	2533	40 43 9	2525
	α Aquilæ E.	65 39 6	3051	64 9 57	3057	62 40 55	3065	61 12 3	3074
	Fomalhaut E.	94 24 13	3024	92 54 30	3014	91 24 34	3005	89 54 27	2997
	Mars E.	97 9 17	2832	95 35 31	2822	94 1 32	2814	92 27 22	2805
24	Regulus W.	102 57 47	2507	104 38 50	2500	106 20 3	2493	108 1 26	2486

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
24	Saturn W.	50 58 1	2530	52 38 33	2520	54 19 19	2511	56 0 17	2502
	Spica W.	42 23 48	2516	44 4 39	2508	45 45 41	2500	47 26 54	2492
	α Aquilæ E.	59 43 22	2085	58 14 54	2098	56 46 42	2114	55 18 49	2132
	Fomalhaut E.	88 24 10	2989	86 53 44	2982	85 23 9	2977	83 52 28	2973
	Mars E.	90 53 1	2796	89 18 28	2788	87 43 44	2779	86 8 49	2771
25	Saturn W.	64 28 11	2461	66 10 19	2453	67 52 39	2445	69 35 9	2438
	Spica W.	55 55 38	2455	57 37 54	2449	59 20 19	2442	61 2 54	2435
	Jupiter W.	22 49 50	2421	24 32 54	2414	26 16 9	2407	27 59 33	2400
	Fomalhaut E.	76 17 55	2963	74 46 56	2965	73 15 59	2967	71 45 5	2971
	Mars E.	78 11 38	2733	76 35 42	2726	74 59 38	2719	73 23 24	2713
	α Pegasi E.	92 48 8	2605	91 9 20	2599	89 30 23	2592	87 51 17	2585
	Venus E.	115 27 37	2881	113 54 54	2874	112 22 2	2866	110 48 59	2858
	SUN E.	137 43 59	2778	136 9 2	2770	134 33 55	2763	132 58 39	2756
26	Saturn W.	78 10 7	2405	79 53 34	2398	81 37 11	2393	83 20 56	2387
	Spica W.	69 38 10	2403	71 21 40	2398	73 5 18	2391	74 49 6	2386
	Jupiter W.	36 39 0	2368	38 23 20	2362	40 7 50	2356	41 52 28	2350
	Antares W.	24 52 34	2546	26 32 43	2525	28 13 22	2505	29 54 29	2487
	Fomalhaut E.	64 12 22	3011	62 42 23	3025	61 12 41	3040	59 43 18	3058
	Mars E.	65 20 7	2683	63 43 4	2678	62 5 54	2672	60 28 37	2667
	α Pegasi E.	79 33 45	2559	77 53 54	2556	76 13 58	2552	74 33 57	2548
	Venus E.	103 1 15	2821	101 27 14	2814	99 53 4	2807	98 18 45	2801
	SUN E.	124 59 53	2720	123 23 40	2714	121 47 19	2708	120 10 49	2701
27	Saturn W.	92 1 46	2359	93 46 20	2355	95 31 0	2349	97 15 48	2344
	Spica W.	83 30 4	2358	85 14 40	2353	86 59 23	2348	88 44 13	2342
	Jupiter W.	50 37 43	2322	52 23 10	2317	54 8 44	2311	55 54 27	2307
	Antares W.	38 25 20	2424	40 8 21	2414	41 51 36	2405	43 35 4	2396
	Mars E.	52 20 35	2646	50 42 43	2642	49 4 45	2640	47 26 44	2637
	Fomalhaut E.	52 22 51	3188	50 56 28	3225	49 30 49	3267	48 5 59	3314
	α Pegasi E.	66 12 58	2540	64 32 41	2541	62 52 24	2542	61 12 9	2543
	Venus E.	90 25 3	2769	88 49 55	2763	87 14 38	2757	85 39 14	2752
	SUN E.	112 6 14	2671	110 28 55	2665	108 51 28	2660	107 13 54	2654
28	Saturn W.	106 1 29	2322	107 46 56	2319	109 32 28	2315	111 18 6	2311
	Jupiter W.	64 44 46	2283	66 31 11	2278	68 17 42	2274	70 4 20	2270
	Antares W.	52 15 17	2359	53 59 50	2353	55 44 32	2348	57 29 22	2342
	Mars E.	39 15 56	2632	37 37 44	2632	35 59 33	2634	34 21 24	2637
	α Pegasi E.	52 51 48	2565	51 12 4	2573	49 32 32	2583	47 53 13	2594
	Venus E.	77 40 26	2725	76 4 19	2721	74 28 7	2715	72 51 47	2711
	SUN E.	99 4 15	2628	97 25 58	2623	95 47 35	2618	94 9 5	2614
29	Jupiter W.	78 59 1	2249	80 46 15	2247	82 33 33	2243	84 20 57	2239
	Antares W.	66 15 33	2316	68 1 9	2313	69 46 50	2308	71 32 38	2304
	α Pegasi E.	39 41 33	2689	38 4 38	2718	36 28 22	2753	34 52 52	2794
	Venus E.	64 48 43	2690	63 11 50	2686	61 34 52	2683	59 57 49	2680
	SUN E.	85 55 5	2593	84 16 0	2588	82 36 49	2585	80 57 33	2582
30	Jupiter W.	93 19 5	2225	95 6 55	2223	96 54 48	2221	98 42 44	2219
	Antares W.	80 22 55	2288	82 9 12	2285	83 55 33	2283	85 41 57	2282
	Venus E.	51 51 36	2666	50 14 11	2665	48 36 44	2663	46 59 15	2662
	SUN E.	72 40 7	2566	71 0 26	2564	69 20 41	2561	67 40 53	2559

MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
24	Saturn W.	57 41 28	2493	59 22 51	2484	61 4 26	2476	62 46 13	2468
	Spica W.	49 8 18	2485	50 49 52	2477	52 31 37	2470	54 13 33	2463
	α Aquilæ E.	53 51 18	2452	52 24 11	2476	50 57 33	2403	49 31 27	2324
	Fomalhaut E.	82 21 41	2968	80 50 48	2965	79 19 52	2964	77 48 54	2963
	Mars E.	84 33 43	2763	82 58 27	2756	81 23 1	2748	79 47 24	2741
25	Saturn W.	71 17 49	2431	73 0 39	2424	74 43 39	2418	76 26 48	2411
	Spica W.	62 45 39	2429	64 28 33	2422	66 11 36	2415	67 54 49	2410
	Jupiter W.	29 43 8	2394	31 26 52	2387	33 10 45	2380	34 54 48	2374
	Fomalhaut E.	70 14 16	2976	68 43 33	2983	67 12 59	2991	65 42 35	3000
	Mars E.	71 47 1	2707	70 10 30	2700	68 33 50	2695	66 57 3	2688
	α Pegasi E.	86 12 2	2580	84 32 39	2574	82 53 8	2569	81 13 30	2564
	Venus E.	109 15 46	2850	107 42 23	2842	106 8 50	2835	104 35 7	2828
	SUN E.	131 23 13	2748	129 47 36	2741	128 11 51	2734	126 35 56	2728
26	Saturn W.	85 4 50	2381	86 48 52	2375	88 33 2	2370	90 17 20	2364
	Spica W.	76 33 1	2380	78 17 5	2374	80 1 17	2369	81 45 37	2364
	Jupiter W.	43 37 14	2344	45 22 9	2339	47 7 12	2333	48 52 24	2328
	Antares W.	31 36 0	2472	33 17 53	2458	35 0 5	2446	36 42 34	2434
	Fomalhaut E.	58 14 17	3078	56 45 40	3100	55 17 31	3126	53 49 53	3156
	Mars E.	58 51 13	2662	57 13 42	2658	55 36 5	2654	53 58 23	2649
	α Pegasi E.	72 53 51	2546	71 13 42	2543	69 33 29	2542	67 53 15	2540
	Venus E.	96 44 18	2794	95 9 42	2787	93 34 57	2781	92 0 4	2775
	SUN E.	118 34 10	2695	116 57 23	2689	115 20 28	2683	113 43 25	2677
27	Saturn W.	99 0 43	2340	100 45 45	2335	102 30 54	2331	104 16 8	2326
	Spica W.	90 29 11	2337	92 14 16	2333	93 59 28	2328	95 44 47	2323
	Jupiter W.	57 40 16	2302	59 26 13	2297	61 12 17	2292	62 58 28	2287
	Antares W.	45 18 44	2388	47 2 36	2380	48 46 39	2373	50 30 53	2366
	Mars E.	45 48 39	2635	44 10 31	2633	42 32 21	2632	40 54 9	2631
	Fomalhaut E.	46 42 4	3368	45 19 11	3428	43 57 26	3496	42 36 58	3572
	α Pegasi E.	59 31 55	2546	57 51 45	2549	56 11 39	2553	54 31 40	2558
	Venus E.	84 3 43	2746	82 28 4	2741	80 52 18	2735	79 16 25	2731
	SUN E.	105 36 12	2649	103 58 23	2643	102 20 27	2638	100 42 24	2634
28	Saturn W.	113 3 49	2307	114 49 38	2304	116 35 31	2302	118 21 28	2299
	Jupiter W.	71 51 4	2265	73 37 55	2262	75 24 51	2258	77 11 53	2253
	Antares W.	59 14 21	2336	60 59 28	2331	62 44 43	2326	64 30 4	2321
	Mars E.	32 43 20	2641	31 5 21	2647	29 27 30	2655	27 49 50	2666
	α Pegasi E.	46 14 10	2607	44 35 25	2623	42 57 2	2641	41 19 3	2663
	Venus E.	71 15 22	2707	69 38 51	2702	68 2 14	2698	66 25 31	2694
	SUN E.	92 30 29	2610	90 51 47	2605	89 12 58	2601	87 34 4	2597
29	Jupiter W.	86 8 26	2237	87 55 59	2233	89 43 37	2231	91 31 19	2228
	Antares W.	73 18 31	2300	75 4 30	2297	76 50 34	2294	78 36 42	2291
	α Pegasi E.	33 18 16	2841	31 44 42	2900	30 12 23	2968	28 41 30	3050
	Venus E.	58 20 42	2677	56 43 31	2674	55 6 16	2671	53 28 57	2669
	SUN E.	79 18 13	2578	77 38 48	2575	75 59 18	2572	74 19 45	2569
30	Jupiter W.	100 30 43	2217	102 18 45	2216	104 6 49	2215	105 54 55	2214
	Antares W.	87 28 23	2279	89 14 53	2278	91 1 24	2277	92 47 58	2276
	Venus E.	45 21 44	2661	43 44 12	2660	42 6 39	2660	40 29 6	2660
	SUN E.	66 1 2	2558	64 21 9	2556	62 41 14	2554	61 1 16	2553

ANN'S Day Numbers—For correcting the Places of the Fixed Stars.

At Mean Midnight,

Day of the Month.

Logarithms of

Value of
L

E

F

G

H

L

1	0.82546	1.31321	0.23286	1.48206	98.141
2	0.83014	1.30591	0.23330	1.48228	98.403
3	0.83511	1.29854	0.23375	1.48250	98.656
4	0.84037	1.29107	0.23420	1.48273	98.899
5	0.84588	1.28351	0.23465	1.48297	99.133
6	0.85165	1.27586	0.23511	1.48321	99.357
7	0.85766	1.26812	0.23558	1.48346	99.571
8	0.86391	1.26029	0.23605	1.48372	99.775
9	0.87035	1.25236	0.23653	1.48399	99.968
10	0.87698	1.24434	0.23701	1.48427	100.153
11	0.88379	1.23623	0.23749	1.48455	100.328
12	0.89079	1.22804	0.23798	1.48484	100.492
13	0.89796	1.21976	0.23848	1.48513	100.646
14	0.90527	1.21139	0.23898	1.48543	100.790
15	0.91273	1.20292	0.23948	1.48573	100.924
16	0.92030	1.19437	0.23998	1.48604	101.049
17	0.92798	1.18573	0.24049	1.48635	101.164
18	0.93576	1.17699	0.24100	1.48667	101.269
19	0.94363	1.16816	0.24152	1.48699	101.363
20	0.95158	1.15925	0.24205	1.48732	101.446
21	0.95962	1.15025	0.24258	1.48765	101.518
22	0.96773	1.14116	0.24312	1.48798	101.580
23	0.97590	1.13199	0.24367	1.48832	101.632
24	0.98418	1.12273	0.24422	1.48866	101.674
25	0.99238	1.11339	0.24478	1.48900	101.705
26	1.00066	1.10397	0.24534	1.48934	101.726
27	1.00896	1.09447	0.24591	1.48968	101.738
28	1.01728	1.08488	0.24649	1.49003	101.738
29	1.02560	1.07521	0.24707	1.49039	101.728
30	1.03393	1.06547	0.24766	1.49075	101.707
31	1.04225	1.05565	0.24825	1.49110	101.676

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^h .238545. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Day of the Year.	Fraction of the Year.*	
1	—1 ^h .2627	—0 ^h .6465	+9 ^h .7071	+0 ^h .7278	23 15 47 ^s .38	10	91	.2492
2	1 ^h .2610	0 ^h .6788	9 ^h .7086	0 ^h .7290	23 11 51 ^s .48	11	92	.2519
3	1 ^h .2591	0 ^h .7088	9 ^h .7101	0 ^h .7303	23 7 55 ^s .57	12	93	.2546
4	—1 ^h .2571	—0 ^h .7367	+9 ^h .7116	+0 ^h .7316	23 3 59 ^s .66	13	94	.2574
5	1 ^h .2550	0 ^h .7627	9 ^h .7131	0 ^h .7329	23 0 3 ^s .76	14	95	.2601
6	1 ^h .2527	0 ^h .7872	9 ^h .7147	0 ^h .7343	22 56 7 ^s .85	15	96	.2628
7	—1 ^h .2503	—0 ^h .8102	+9 ^h .7162	+0 ^h .7357	22 52 11 ^s .94	16	97	.2656
8	1 ^h .2477	0 ^h .8319	9 ^h .7178	0 ^h .7372	22 48 16 ^s .04	17	98	.2683
9	1 ^h .2451	0 ^h .8525	9 ^h .7193	0 ^h .7387	22 44 20 ^s .13	18	99	.2711
10	—1 ^h .2422	—0 ^h .8720	+9 ^h .7209	+0 ^h .7402	22 40 24 ^s .22	19	100	.2738
11	1 ^h .2392	0 ^h .8905	9 ^h .7225	0 ^h .7418	22 36 28 ^s .32	20	101	.2765
12	1 ^h .2361	0 ^h .9082	9 ^h .7241	0 ^h .7433	22 32 32 ^s .41	21	102	.2793
13	—1 ^h .2328	—0 ^h .9250	+9 ^h .7257	+0 ^h .7450	22 28 36 ^s .50	22	103	.2820
14	1 ^h .2294	0 ^h .9410	9 ^h .7273	0 ^h .7466	22 24 40 ^s .60	23	104	.2847
15	1 ^h .2258	0 ^h .9564	9 ^h .7289	0 ^h .7483	22 20 44 ^s .69	24	105	.2875
16	—1 ^h .2221	—0 ^h .9711	+9 ^h .7305	+0 ^h .7499	22 16 48 ^s .78	25	106	.2902
17	1 ^h .2182	0 ^h .9851	9 ^h .7322	0 ^h .7516	22 12 52 ^s .87	26	107	.2930
18	1 ^h .2142	0 ^h .9987	9 ^h .7338	0 ^h .7534	22 8 56 ^s .96	27	108	.2957
19	—1 ^h .2100	—1 ^h .0116	+9 ^h .7355	+0 ^h .7551	22 5 1 ^s .05	28	109	.2984
20	1 ^h .2056	1 ^h .0241	9 ^h .7372	0 ^h .7569	22 1 5 ^s .15	29	110	.3012
21	1 ^h .2011	1 ^h .0361	9 ^h .7389	0 ^h .7586	21 57 9 ^s .24	30	111	.3039
22	—1 ^h .1963	—1 ^h .0476	+9 ^h .7406	+0 ^h .7604	21 53 13 ^s .33	31	112	.3066
23	1 ^h .1914	1 ^h .0587	9 ^h .7424	0 ^h .7622	21 49 17 ^s .43	32	113	.3094
24	1 ^h .1864	1 ^h .0695	9 ^h .7441	0 ^h .7640	21 45 21 ^s .52	33	114	.3121
25	—1 ^h .1811	—1 ^h .0797	+9 ^h .7459	+0 ^h .7659	21 41 25 ^s .61	34	115	.3149
26	1 ^h .1757	1 ^h .0897	9 ^h .7477	0 ^h .7677	21 37 29 ^s .70	35	116	.3176
27	1 ^h .1700	1 ^h .0993	9 ^h .7494	0 ^h .7695	21 33 33 ^s .79	36	117	.3203
28	—1 ^h .1642	—1 ^h .1086	+9 ^h .7513	+0 ^h .7713	21 29 37 ^s .88	37	118	.3231
29	1 ^h .1582	1 ^h .1176	9 ^h .7531	0 ^h .7731	21 25 41 ^s .98	38	119	.3258
30	1 ^h .1519	1 ^h .1262	9 ^h .7549	0 ^h .7750	21 21 46 ^s .07	39	120	.3285
31	—1 ^h .1454	—1 ^h .1346	+9 ^h .7567	+0 ^h .7768	21 17 50 ^s .16	40	121	.3313

* Add .0011 if Fraction be required for the time t , see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		h m s	s	° ' "	"	m s	m s	s
Sun.	1	2 35 34.43	9.553	N.15 14 20.6	45.04	1 6.08	3 4.99	0.304
Mon.	2	2 39 23.96	9.576	15 32 14.1	44.41	1 6.16	3 12.00	0.280
Tues.	3	2 43 14.07	9.599	15 49 52.1	43.76	1 6.24	3 18.42	0.256
Wed.	4	2 47 4.74	9.623	16 7 14.6	43.10	1 6.32	3 24.29	0.233
Thur.	5	2 50 55.98	9.647	16 24 21.0	42.43	1 6.40	3 29.59	0.209
Frid.	6	2 54 47.79	9.671	16 41 11.1	41.74	1 6.48	3 34.32	0.185
Sat.	7	2 58 40.17	9.694	16 57 44.6	41.04	1 6.56	3 38.49	0.162
Sun.	8	3 2 33.12	9.718	17 14 1.2	40.33	1 6.65	3 42.08	0.138
Mon.	9	3 6 26.64	9.741	17 30 0.5	39.61	1 6.73	3 45.10	0.115
Tues.	10	3 10 20.72	9.765	17 45 42.3	38.87	1 6.81	3 47.57	0.091
Wed.	11	3 14 15.37	9.788	18 1 6.3	38.12	1 6.89	3 49.48	0.068
Thur.	12	3 18 10.56	9.812	18 16 12.1	37.36	1 6.98	3 50.84	0.045
Frid.	13	3 22 6.32	9.835	18 30 59.5	36.59	1 7.06	3 51.64	0.023
Sat.	14	3 26 2.62	9.858	18 45 28.2	35.80	1 7.14	3 51.88	0.001
Sun.	15	3 29 59.48	9.881	18 59 37.9	35.00	1 7.22	3 51.58	0.024
Mon.	16	3 33 56.90	9.904	19 13 28.3	34.19	1 7.30	3 50.72	0.047
Tues.	17	3 37 54.86	9.927	19 26 59.2	33.37	1 7.38	3 49.32	0.070
Wed.	18	3 41 53.36	9.949	19 40 10.2	32.54	1 7.46	3 47.38	0.093
Thur.	19	3 45 52.42	9.972	19 53 1.3	31.70	1 7.54	3 44.89	0.115
Frid.	20	3 49 52.00	9.994	20 5 32.0	30.85	1 7.62	3 41.86	0.138
Sat.	21	3 53 52.14	10.017	20 17 42.3	30.00	1 7.70	3 38.29	0.160
Sun.	22	3 57 52.81	10.039	20 29 31.8	29.13	1 7.77	3 34.19	0.182
Mon.	23	4 1 54.01	10.061	20 41 0.3	28.25	1 7.85	3 29.54	0.204
Tues.	24	4 5 55.73	10.083	20 52 7.5	27.36	1 7.92	3 24.41	0.225
Wed.	25	4 9 57.97	10.104	21 2 53.3	26.46	1 7.98	3 18.74	0.247
Thur.	26	4 14 0.73	10.125	21 13 17.4	25.55	1 8.05	3 12.55	0.268
Frid.	27	4 18 3.98	10.146	21 23 19.6	24.63	1 8.12	3 5.88	0.289
Sat.	28	4 22 7.73	10.166	21 32 59.7	23.70	1 8.18	2 58.71	0.309
Sun.	29	4 26 11.95	10.186	21 42 17.4	22.77	1 8.25	2 51.07	0.328
Mon.	30	4 30 16.64	10.205	21 51 12.5	21.82	1 8.31	2 42.96	0.347
Tues.	31	4 34 21.78	10.223	21 59 44.9	20.87	1 8.37	2 34.39	0.365
Wed.	32	4 38 27.34		N.22 7 54.4		1 8.42	2 25.42	

* Mean Time of the Semidiameter passing may be found by subtracting 0^s.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Sun.	1	2 35 34.92	N.15 14 23.0	15 53.8	3 5.01	2 38 39.93
Mon.	2	2 39 24.47	15 32 16.4	15 53.6	3 12.01	2 42 36.48
Tues.	3	2 43 14.60	15 49 54.5	15 53.3	3 18.43	2 46 33.03
Wed.	4	2 47 5.29	16 7 17.0	15 53.1	3 24.30	2 50 29.59
Thur.	5	2 50 56.54	16 24 23.5	15 52.9	3 29.60	2 54 26.14
Frid.	6	2 54 48.37	16 41 13.6	15 52.7	3 34.33	2 58 22.70
Sat.	7	2 58 40.76	16 57 47.1	15 52.4	3 38.50	3 2 19.26
Sun.	8	3 2 33.72	17 14 3.7	15 52.2	3 42.09	3 6 15.81
Mon.	9	3 6 27.25	17 30 3.0	15 52.0	3 45.11	3 10 12.36
Tues.	10	3 10 21.34	17 45 44.8	15 51.8	3 47.58	3 14 8.92
Wed.	11	3 14 15.99	18 1 8.7	15 51.6	3 49.48	3 18 5.47
Thur.	12	3 18 11.19	18 16 14.5	15 51.4	3 50.84	3 22 2.03
Frid.	13	3 22 6.95	18 31 1.9	15 51.2	3 51.64	3 25 58.59
Sat.	14	3 26 3.26	18 45 30.5	15 51.0	3 51.88	3 29 55.14
Sun.	15	3 30 0.12	18 59 40.1	15 50.8	3 51.58	3 33 51.70
Mon.	16	3 33 57.53	19 13 30.5	15 50.7	3 50.72	3 37 48.25
Tues.	17	3 37 55.49	19 27 1.3	15 50.5	3 49.32	3 41 44.81
Wed.	18	3 41 53.99	19 40 12.3	15 50.3	3 47.37	3 45 41.36
Thur.	19	3 45 53.04	19 53 3.3	15 50.1	3 44.88	3 49 37.92
Frid.	20	3 49 52.62	20 5 33.9	15 49.9	3 41.85	3 53 34.47
Sat.	21	3 53 52.75	20 17 44.1	15 49.7	3 38.28	3 57 31.03
Sun.	22	3 57 53.41	20 29 33.5	15 49.6	3 34.18	4 1 27.59
Mon.	23	4 1 54.60	20 41 1.9	15 49.4	3 29.54	4 5 24.14
Tues.	24	4 5 56.30	20 52 9.1	15 49.2	3 24.40	4 9 20.70
Wed.	25	4 9 58.53	21 2 54.8	15 49.1	3 18.73	4 13 17.26
Thur.	26	4 14 1.27	21 13 18.8	15 48.9	3 12.54	4 17 13.81
Frid.	27	4 18 4.50	21 23 20.9	15 48.7	3 5.87	4 21 10.37
Sat.	28	4 22 8.23	21 33 0.8	15 48.6	2 58.69	4 25 6.92
Sun.	29	4 26 12.43	21 42 18.4	15 48.4	2 51.05	4 29 3.48
Mon.	30	4 30 17.10	21 51 13.5	15 48.3	2 42.94	4 33 0.04
Tues.	31	4 34 22.22	21 59 45.8	15 48.1	2 34.37	4 36 56.59
Wed.	32	4 38 27.75	N.22 7 55.2	15 48.0	2 25.40	4 40 53.15

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	41° 19' 46".4	N. 0° 17'	0.0036243	16° 14' 3"	16° 14' 0"	59° 29' 4"	59° 28' 3"
2	42° 17' 55".5	N. 0° 10'	0.0037330	16° 13' 1"	16° 11' 7"	59° 25' 3"	59° 20' 2"
3	43° 16' 3".2	0 00'	0.0038402	16° 9' 7"	16° 7' 1"	59° 12' 8"	59° 3' 3"
4	44° 14' 9".4	S. 0° 12'	0.0039457	16° 3' 9"	16° 0' 2"	58° 51' 6"	58° 37' 9"
5	45° 12' 14".0	0 24'	0.0040493	15° 55' 9"	15° 51' 2"	58° 22' 3"	58° 5' 0"
6	46° 10' 17".1	0 37'	0.0041511	15° 46' 1"	15° 40' 7"	57° 46' 3"	57° 26' 6"
7	47° 8' 18".6	0 51'	0.0042510	15° 35' 2"	15° 29' 5"	57° 6' 2"	56° 45' 5"
8	48° 6' 18".4	0 63'	0.0043491	15° 23' 9"	15° 18' 4"	56° 24' 8"	56° 4' 7"
9	49° 4' 16".5	0 74'	0.0044453	15° 13' 1"	15° 8' 1"	55° 45' 4"	55° 27' 2"
10	50° 2' 12".8	0 82'	0.0045399	15° 3' 6"	14° 59' 6"	55° 10' 6"	54° 55' 7"
11	51° 0' 7".4	0 89'	0.0046328	14° 56' 1"	14° 53' 1"	54° 42' 9"	54° 32' 2"
12	51° 58' 0".2	0 92'	0.0047241	14° 50' 9"	14° 49' 3"	54° 23' 9"	54° 18' 1"
13	52° 55' 51".3	0 94'	0.0048138	14° 48' 4"	14° 48' 2"	54° 14' 9"	54° 14' 2"
14	53° 53' 40".5	0 92'	0.0049021	14° 48' 8"	14° 50' 0"	54° 16' 2"	54° 20' 7"
15	54° 51' 28".0	0 89'	0.0049890	14° 51' 9"	14° 54' 5"	54° 27' 8"	54° 37' 2"
16	55° 49' 13".9	0 83'	0.0050746	14° 57' 7"	15° 1' 4"	54° 48' 9"	55° 2' 6"
17	56° 46' 58".1	0 76'	0.0051590	15° 5' 7"	15° 10' 4"	55° 18' 1"	55° 35' 3"
18	57° 44' 40".7	0 66'	0.0052423	15° 15' 4"	15° 20' 7"	55° 53' 7"	56° 13' 1"
19	58° 42' 21".8	0 55'	0.0053245	15° 26' 1"	15° 31' 6"	56° 33' 1"	56° 53' 3"
20	59° 40' 1".6	0 42'	0.0054057	15° 37' 1"	15° 42' 5"	57° 13' 4"	57° 33' 0"
21	60° 37' 40".0	0 29'	0.0054859	15° 47' 6"	15° 52' 4"	57° 51' 8"	58° 9' 4"
22	61° 35' 17".2	0 16'	0.0055650	15° 56' 8"	16° 0' 8"	58° 25' 6"	58° 40' 1"
23	62° 32' 53".2	S. 0° 04'	0.0056431	16° 4' 2"	16° 7' 1"	58° 52' 7"	59° 3' 3"
24	63° 30' 28".1	N. 0° 05'	0.0057203	16° 9' 5"	16° 11' 2"	59° 11' 9"	59° 18' 4"
25	64° 28' 2".0	0 12'	0.0057964	16° 12' 5"	16° 13' 2"	59° 23' 0"	59° 25' 6"
26	65° 25' 34".9	0 16'	0.0058712	16° 13' 5"	16° 13' 2"	59° 26' 5"	59° 25' 7"
27	66° 23' 7".0	0 16'	0.0059445	16° 12' 6"	16° 11' 6"	59° 23' 4"	59° 19' 7"
28	67° 20' 38".3	0 14'	0.0060162	16° 10' 2"	16° 8' 6"	59° 14' 7"	59° 8' 6"
29	68° 18' 8".8	N. 0° 08'	0.0060861	16° 6' 6"	16° 4' 4"	59° 1' 4"	58° 53' 2"
30	69° 15' 38".6	S. 0° 01'	0.0061542	16° 1' 9"	15° 59' 1"	58° 44' 1"	58° 33' 9"
31	70° 13' 7".7	0 14'	0.0062202	15° 56' 1"	15° 52' 8"	58° 22' 9"	58° 10' 8"
32	71° 10' 35".9	S. 0° 26'	0.0062840	15° 49' 3"	15° 45' 6"	57° 58' 0"	57° 44' 4"

MEAN TIME.

		THE MOON'S																				
Day of the Week.	Day of the Month.	Longitude.				Latitude.				Age.	Meridian											
		Noon.		Midnight.		Noon.		Midnight.		Noon.	Passage.											
		<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>d</i>	<i>h</i> <i>m</i>											
Sun.	1	342	5	46	1	349	15	51	1	N. 4	50	13	7	24	9	20	51	1				
Mon.	2	356	25	24	2	3	33	54	4	4	9	57	0	3	43	50	9	25	9	21	42	8
Tues.	3	10	40	49	7	17	45	38	5	3	14	21	8	2	42	1	4	26	9	22	35	2
Wed.	4	24	47	49	6	31	46	53	7	2	7	24	0	1	31	6	4	27	9	23	28	5
Thur.	5	38	42	24	1	45	33	57	5	N. 0	53	45	5	N. 0	15	58	3	28	9		6	
Frid.	6	52	21	14	5	59	4	0	3	S. 0	21	39	3	S. 0	58	34	2	0	5	0	22	6
Sat.	7	65	42	5	2	72	15	24	2	1	34	15	1	2	8	15	1	1	5	1	16	8
Sun.	8	78	43	58	0	85	7	52	0	2	40	10	8	3	9	41	8	2	5	2	10	3
Mon.	9	91	27	16	1	97	42	25	4	3	36	31	5	4	0	26	9	3	5	3	2	2
Tues.	10	103	53	38	6	110	1	18	4	4	21	17	5	4	38	55	9	4	5	3	51	9
Wed.	11	116	5	50	2	122	7	42	5	4	53	16	4	5	4	15	7	5	5	4	39	2
Thur.	12	128	7	25	9	134	5	32	6	5	11	51	4	5	16	2	7	6	5	5	24	3
Frid.	13	140	2	36	1	145	59	10	8	5	16	49	6	5	14	13	2	7	5	6	7	7
Sat.	14	151	55	51	5	157	53	12	8	5	8	15	1	4	58	57	7	8	5	6	50	1
Sun.	15	163	51	48	7	169	52	12	3	4	46	24	5	4	30	39	6	9	5	7	32	2
Mon.	16	175	54	55	3	182	0	27	6	4	11	48	8	3	49	59	1	10	5	8	14	9
Tues.	17	188	9	16	5	194	21	46	7	3	25	19	2	2	58	0	2	11	5	8	59	0
Wed.	18	200	38	19	3	206	59	11	9	2	28	15	3	1	56	20	8	12	5	9	45	3
Thur.	19	213	24	37	8	219	54	45	7	1	22	35	7	S. 0	47	22	5	13	5	10	34	5
Frid.	20	226	29	39	2	233	9	17	0	S. 0	11	6	4	N. 0	25	44	0	14	5	11	26	7
Sat.	21	239	53	32	6	246	42	14	1	N. 1	2	37	4	1	39	0	5	15	5	12	22	0
Sun.	22	253	35	5	0	260	31	44	2	2	14	18	5	2	47	55	9	16	5	13	19	3
Mon.	23	267	31	46	7	274	34	44	4	3	19	17	4	3	47	49	5	17	5	14	17	3
Tues.	24	281	40	7	0	288	47	22	7	4	13	1	0	4	34	24	0	18	5	15	14	8
Wed.	25	295	55	59	2	303	5	25	8	4	51	35	2	5	4	15	9	19	5	16	10	7
Thur.	26	310	15	10	3	317	24	46	1	5	12	12	9	5	15	18	4	20	5	17	4	6
Frid.	27	324	33	46	8	331	41	49	5	5	13	30	5	5	6	52	6	21	5	17	56	7
Sat.	28	338	48	33	9	345	53	42	3	4	55	33	2	4	39	45	7	22	5	18	47	6
Sun.	29	352	56	59	9	359	58	13	9	4	19	48	1	3	56	1	8	23	5	19	38	1
Mon.	30	6	57	12	9	13	53	47	5	3	28	52	0	2	58	46	6	24	5	20	28	9
Tues.	31	20	47	48	6	27	39	8	1	2	26	15	7	1	51	51	0	25	5	21	20	5
Wed.	32	34	27	38	4	41	13	11	9	N. 1	16	5	2	N. 0	39	31	4	26	5	22	13	2

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MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 1.				TUESDAY 3.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	22 46 34.98	S. 2 33 16.4	123.32	0	0 34 8.60	N. 7 12 32.3	115.75
1	22 48 49.31	2 20 56.6	123.46	1	0 36 24.06	7 24 6.8	115.58
2	22 51 3.61	2 8 35.8	123.59	2	0 38 39.59	7 35 38.5	114.80
3	22 53 17.87	1 56 14.3	123.70	3	0 40 55.19	7 47 7.3	114.32
4	22 55 32.11	1 43 52.1	123.80	4	0 43 10.87	7 58 33.2	113.82
5	22 57 46.33	1 31 29.3	123.89	5	0 45 26.63	8 9 56.1	113.30
6	23 0 0.52	1 19 5.9	123.97	6	0 47 42.46	8 21 15.9	112.77
7	23 2 14.70	1 6 42.1	124.03	7	0 49 58.38	8 32 32.6	112.23
8	23 4 28.85	0 54 17.9	124.09	8	0 52 14.37	8 43 46.0	111.68
9	23 6 42.99	0 41 53.4	124.13	9	0 54 30.44	8 54 56.1	111.12
10	23 8 57.12	0 29 28.6	124.15	10	0 56 46.60	9 6 2.8	110.55
11	23 11 11.24	0 17 3.7	124.17	11	0 59 2.84	9 17 6.1	109.97
12	23 13 25.35	S. 0 4 38.7	124.17	12	1 1 19.16	9 28 5.9	109.37
13	23 15 39.46	N. 0 7 46.3	124.16	13	1 3 35.57	9 39 2.1	108.75
14	23 17 53.56	0 20 11.3	124.13	14	1 5 52.06	9 49 54.6	108.13
15	23 20 7.66	0 32 36.1	124.10	15	1 8 8.64	10 0 43.4	107.50
16	23 22 21.77	0 45 0.6	124.05	16	1 10 25.31	10 11 28.5	106.86
17	23 24 35.89	0 57 24.9	123.98	17	1 12 42.07	10 22 9.6	106.20
18	23 26 50.01	1 9 48.8	123.91	18	1 14 58.91	10 32 46.8	105.54
19	23 29 4.14	1 22 12.3	123.82	19	1 17 15.85	10 43 20.0	104.86
20	23 31 18.28	1 34 35.2	123.72	20	1 19 32.87	10 53 49.2	104.17
21	23 33 32.44	1 46 57.5	123.61	21	1 21 49.99	11 4 14.2	103.47
22	23 35 46.62	1 59 19.2	123.48	22	1 24 7.19	11 14 35.1	102.76
23	23 38 0.82	N. 2 11 40.0	123.34	23	1 26 24.48	N. 11 24 51.7	102.04
MONDAY 2.				WEDNESDAY 4.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	23 40 15.03	N. 2 24 0.1	123.19	0	1 28 41.87	N. 11 35 3.9	101.31
1	23 42 29.27	2 36 19.2	123.02	1	1 30 59.35	11 45 11.8	100.57
2	23 44 43.54	2 48 37.4	122.85	2	1 33 16.91	11 55 15.2	99.82
3	23 46 57.84	3 0 54.4	122.66	3	1 35 34.57	12 5 14.1	99.05
4	23 49 12.17	3 13 10.4	122.45	4	1 37 52.32	12 15 8.4	98.28
5	23 51 26.54	3 25 25.1	122.23	5	1 40 10.15	12 24 58.1	97.49
6	23 53 40.94	3 37 38.5	122.00	6	1 42 28.08	12 34 43.0	96.70
7	23 55 55.38	3 49 50.5	121.77	7	1 44 46.10	12 44 23.8	95.89
8	23 58 9.86	4 2 1.1	121.52	8	1 47 4.21	12 53 58.6	95.07
9	0 0 24.38	4 14 10.2	121.25	9	1 49 22.40	13 3 29.0	94.25
10	0 2 38.94	4 26 17.7	120.97	10	1 51 40.69	13 12 54.5	93.42
11	0 4 53.55	4 38 23.5	120.68	11	1 53 59.06	13 22 15.0	92.58
12	0 7 8.21	4 50 27.6	120.37	12	1 56 17.51	13 31 30.5	91.72
13	0 9 22.92	5 2 29.8	120.05	13	1 58 36.06	13 40 40.8	90.85
14	0 11 37.68	5 14 30.1	119.72	14	2 0 54.69	13 49 45.9	89.98
15	0 13 52.50	5 26 28.5	119.38	15	2 3 13.40	13 58 45.8	89.10
16	0 16 7.37	5 38 24.8	119.03	16	2 5 32.20	14 7 40.3	88.20
17	0 18 22.31	5 50 18.9	118.66	17	2 7 51.09	14 16 29.5	87.30
18	0 20 37.30	6 2 10.9	118.28	18	2 10 10.05	14 25 13.3	86.39
19	0 22 52.35	6 14 0.6	117.88	19	2 12 29.09	14 33 52.7	85.47
20	0 25 7.47	6 25 47.9	117.48	20	2 14 48.22	14 42 24.5	84.55
21	0 27 22.65	6 37 32.8	117.07	21	2 17 7.42	14 50 51.8	83.62
22	0 29 37.90	6 49 15.2	116.64	22	2 19 26.70	14 59 13.5	82.67
23	0 31 53.22	7 0 55.1	116.20	23	2 21 46.06	15 7 29.5	81.71
24	0 34 8.60	N. 7 12 32.3		24	2 24 5.49	N. 15 15 39.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 5.				SATURDAY 7.			
0	^h 2 ^m 24 ^s 5.49	N. 15 15 39.7	80.75	0	^h 4 ^m 16 ^s 21.37	N. 19 43 25.8	28.12
1	2 26 24.99	15 23 44.2	79.78	1	4 18 41.42	19 46 14.5	26.96
2	2 28 44.57	15 31 42.9	78.80	2	4 21 1.40	19 48 56.3	25.79
3	2 31 4.21	15 39 35.7	77.82	3	4 23 21.32	19 51 31.0	24.63
4	2 33 23.93	15 47 22.6	76.83	4	4 25 41.16	19 53 58.8	23.47
5	2 35 43.70	15 55 3.6	75.83	5	4 28 0.92	19 56 19.6	22.31
6	2 38 3.54	16 2 38.6	74.82	6	4 30 20.60	19 58 33.5	21.14
7	2 40 23.45	16 10 7.6	73.81	7	4 32 40.20	20 0 40.3	19.98
8	2 42 43.41	16 17 30.4	72.79	8	4 34 59.71	20 2 40.2	18.82
9	2 45 3.43	16 24 47.2	71.77	9	4 37 19.12	20 4 33.2	17.67
10	2 47 23.51	16 31 57.8	70.73	10	4 39 38.44	20 6 19.2	16.51
11	2 49 43.64	16 39 2.2	69.69	11	4 41 57.67	20 7 58.2	15.35
12	2 52 3.83	16 46 0.3	68.64	12	4 44 16.79	20 9 30.4	14.20
13	2 54 24.06	16 52 52.2	67.59	13	4 46 35.81	20 10 55.6	13.05
14	2 56 44.34	16 59 37.7	66.53	14	4 48 54.72	20 12 13.9	11.90
15	2 59 4.66	17 6 16.9	65.46	15	4 51 13.51	20 13 25.3	10.75
16	3 1 25.03	17 12 49.7	64.39	16	4 53 32.19	20 14 29.8	9.61
17	3 3 45.43	17 19 16.0	63.32	17	4 55 50.75	20 15 27.4	8.47
18	3 6 5.87	17 25 36.0	62.23	18	4 58 9.19	20 16 18.2	7.32
19	3 8 26.35	17 31 49.4	61.15	19	5 0 27.51	20 17 2.1	6.18
20	3 10 46.85	17 37 56.2	60.06	20	5 2 45.69	20 17 39.2	5.05
21	3 13 7.39	17 43 56.6	58.96	21	5 5 3.74	20 18 9.5	3.92
22	3 15 27.95	17 49 50.3	57.86	22	5 7 21.66	20 18 33.1	2.79
23	3 17 48.53	N. 17 55 37.4	56.75	23	5 9 39.43	N. 20 18 49.8	1.66
FRIDAY 6.				SUNDAY 8.			
0	3 20 9.13	N. 18 1 17.9	55.63	0	5 11 57.07	N. 20 18 59.8	0.54
1	3 22 29.75	18 6 51.7	54.52	1	5 14 14.56	20 19 3.0	0.58
2	3 24 50.39	18 12 18.8	53.40	2	5 16 31.90	20 18 59.6	1.69
3	3 27 11.03	18 17 39.3	52.28	3	5 18 49.09	20 18 49.4	2.80
4	3 29 31.68	18 22 52.9	51.15	4	5 21 6.13	20 18 32.6	3.91
5	3 31 52.34	18 27 59.8	50.02	5	5 23 23.01	20 18 9.2	5.01
6	3 34 13.00	18 33 0.0	48.88	6	5 25 39.73	20 17 39.1	6.11
7	3 36 33.66	18 37 53.3	47.75	7	5 27 56.28	20 17 2.5	7.20
8	3 38 54.32	18 42 39.8	46.62	8	5 30 12.68	20 16 19.3	8.29
9	3 41 14.96	18 47 19.5	45.48	9	5 32 28.90	20 15 29.6	9.38
10	3 43 35.59	18 51 52.4	44.33	10	5 34 44.95	20 14 33.3	10.45
11	3 45 56.21	18 56 18.4	43.18	11	5 37 0.83	20 13 30.6	11.53
12	3 48 16.81	19 0 37.4	42.03	12	5 39 16.53	20 12 21.4	12.60
13	3 50 37.39	19 4 49.6	40.88	13	5 41 32.06	20 11 5.8	13.67
14	3 52 57.94	19 8 54.9	39.73	14	5 43 47.40	20 9 43.8	14.72
15	3 55 18.47	19 12 53.3	38.57	15	5 46 2.56	20 8 15.5	15.78
16	3 57 38.97	19 16 44.7	37.42	16	5 48 17.53	20 6 40.8	16.83
17	3 59 59.42	19 20 29.3	36.26	17	5 50 32.32	20 4 59.8	17.88
18	4 2 19.84	19 24 6.8	35.10	18	5 52 46.92	20 3 12.5	18.92
19	4 4 40.23	19 27 37.4	33.94	19	5 55 1.32	20 1 19.0	19.95
20	4 7 0.56	19 31 1.0	32.78	20	5 57 15.53	19 59 19.3	20.98
21	4 9 20.85	19 34 17.7	31.62	21	5 59 29.54	19 57 13.4	22.00
22	4 11 41.08	19 37 27.4	30.45	22	6 1 43.35	19 55 1.4	23.02
23	4 14 1.25	19 40 30.1	29.28	23	6 3 56.96	19 52 43.2	24.04
24	4 16 21.37	N. 19 43 25.8		24	6 6 10.37	N. 19 50 19.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
MONDAY 9.				WEDNESDAY 11.			
0	^h 6 ^m 10 ^s 37	N. 19 50 19.0	25.05	0	^h 7 ^m 48 ^s 35	N. 16 8 24.0	65.68
1	6 8 23.58	19 47 48.7	26.05	1	7 50 37.90	16 1 49.9	66.36
2	6 10 36.58	19 45 12.4	27.04	2	7 52 40.22	15 55 11.8	67.03
3	6 12 49.37	19 42 30.2	28.03	3	7 54 42.33	15 48 29.5	67.70
4	6 15 1.95	19 39 42.0	29.01	4	7 56 44.22	15 41 43.3	68.36
5	6 17 14.32	19 36 47.9	29.99	5	7 58 45.91	15 34 53.2	69.02
6	6 19 26.48	19 33 48.0	30.96	6	8 0 47.38	15 27 59.1	69.67
7	6 21 38.42	19 30 42.2	31.92	7	8 2 48.64	15 21 1.1	70.31
8	6 23 50.15	19 27 30.7	32.88	8	8 4 49.70	15 13 59.2	70.94
9	6 26 1.67	19 24 13.4	33.83	9	8 6 50.55	15 6 53.6	71.57
10	6 28 12.96	19 20 50.4	34.77	10	8 8 51.20	14 59 44.2	72.19
11	6 30 24.04	19 17 21.8	35.71	11	8 10 51.65	14 52 31.0	72.80
12	6 32 34.89	19 13 47.5	36.65	12	8 12 51.89	14 45 14.3	73.40
13	6 34 45.53	19 10 7.6	37.57	13	8 14 51.94	14 37 53.9	74.00
14	6 36 55.94	19 6 22.2	38.49	14	8 16 51.78	14 30 29.9	74.60
15	6 39 6.13	19 2 31.3	39.40	15	8 18 51.44	14 23 2.3	75.18
16	6 41 16.10	18 58 34.9	40.30	16	8 20 50.90	14 15 31.2	75.76
17	6 43 25.84	18 54 33.1	41.20	17	8 22 50.16	14 7 56.6	76.34
18	6 45 35.36	18 50 25.9	42.10	18	8 24 49.24	14 0 18.6	76.91
19	6 47 44.66	18 46 13.3	42.98	19	8 26 48.13	13 52 37.1	77.47
20	6 49 53.72	18 41 55.4	43.86	20	8 28 46.83	13 44 52.3	78.03
21	6 52 2.56	18 37 32.2	44.73	21	8 30 45.35	13 37 4.2	78.58
22	6 54 11.18	18 33 3.9	45.60	22	8 32 43.68	13 29 12.7	79.12
23	6 56 19.56	N. 18 28 30.3	46.46	23	8 34 41.84	N. 13 21 18.0	79.65
TUESDAY 10.				THURSDAY 12.			
0	6 58 27.72	N. 18 23 51.6	47.31	0	8 36 39.81	N. 13 13 20.1	80.13
1	7 0 35.65	18 19 7.7	48.16	1	8 38 37.61	13 5 19.0	80.71
2	7 2 43.35	18 14 18.8	48.99	2	8 40 35.24	12 57 14.7	81.23
3	7 4 50.82	18 9 24.8	49.82	3	8 42 32.69	12 49 7.4	81.74
4	7 6 58.07	18 4 25.9	50.65	4	8 44 29.98	12 40 56.9	82.25
5	7 9 5.08	17 59 22.0	51.46	5	8 46 27.10	12 32 43.4	82.75
6	7 11 11.87	17 54 13.2	52.27	6	8 48 24.05	12 24 27.0	83.24
7	7 13 18.42	17 48 59.6	53.08	7	8 50 20.84	12 16 7.5	83.73
8	7 15 24.75	17 43 41.1	53.87	8	8 52 17.48	12 7 45.2	84.21
9	7 17 30.86	17 38 17.8	54.65	9	8 54 13.95	11 59 19.9	84.69
10	7 19 36.73	17 32 49.9	55.44	10	8 56 10.27	11 50 51.8	85.16
11	7 21 42.38	17 27 17.2	56.22	11	8 58 6.43	11 42 20.9	85.62
12	7 23 47.79	17 21 39.9	56.99	12	9 0 2.45	11 33 47.2	86.07
13	7 25 52.98	17 15 58.0	57.75	13	9 1 58.32	11 25 10.8	86.52
14	7 27 57.95	17 10 11.5	58.50	14	9 3 54.04	11 16 31.6	86.97
15	7 30 2.70	17 4 20.5	59.25	15	9 5 49.61	11 7 49.8	87.41
16	7 32 7.22	16 58 24.9	59.99	16	9 7 45.05	10 59 5.3	87.84
17	7 34 11.51	16 52 25.0	60.73	17	9 9 40.35	10 50 18.3	88.27
18	7 36 15.58	16 46 20.6	61.46	18	9 11 35.51	10 41 28.6	88.70
19	7 38 19.43	16 40 11.8	62.18	19	9 13 30.54	10 32 36.4	89.12
20	7 40 23.06	16 33 58.7	62.89	20	9 15 25.44	10 23 41.8	89.53
21	7 42 26.47	16 27 41.4	63.60	21	9 17 20.21	10 14 44.6	89.93
22	7 44 29.66	16 21 19.8	64.30	22	9 19 14.86	10 5 45.0	90.33
23	7 46 32.63	16 14 53.9	65.00	23	9 21 9.38	9 56 43.0	90.73
24	7 48 35.37	N. 16 8 24.0	-	24	9 23 3.78	N. 9 47 38.6	-

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
FRIDAY 13.				SUNDAY 15.			
0	^h 9 ^m 23 ^s 3.78	N. 9 47 38.6	91.12	0	^h 10 ^m 53 ^s 11.94	N. 1 56 33.5	103.34
1	9 24 58.07	9 38 31.9	91.50	1	10 55 4.13	1 46 13.5	103.46
2	9 26 52.24	9 29 22.9	91.87	2	10 56 56.35	1 35 52.7	103.58
3	9 28 46.31	9 20 11.7	92.25	3	10 58 48.61	1 25 31.2	103.68
4	9 30 40.26	9 10 58.2	92.62	4	11 0 40.91	1 15 9.1	103.79
5	9 32 34.11	9 1 42.5	92.98	5	11 2 33.26	1 4 46.3	103.89
6	9 34 27.86	8 52 24.6	93.33	6	11 4 25.65	0 54 23.0	103.98
7	9 36 21.50	8 43 4.6	93.68	7	11 6 18.09	0 43 59.1	104.07
8	9 38 15.05	8 33 42.5	94.03	8	11 8 10.58	0 33 34.7	104.15
9	9 40 8.51	8 24 18.4	94.37	9	11 10 3.13	0 23 9.8	104.22
10	9 42 1.87	8 14 52.2	94.70	10	11 11 55.74	0 12 44.5	104.29
11	9 43 55.14	8 5 24.0	95.02	11	11 13 48.41	N. 0 2 18.7	104.35
12	9 45 48.33	7 55 53.9	95.34	12	11 15 41.15	S. 0 8 7.4	104.41
13	9 47 41.44	7 46 21.8	95.66	13	11 17 33.96	0 18 33.9	104.47
14	9 49 34.47	7 36 47.9	95.98	14	11 19 26.84	0 29 0.7	104.52
15	9 51 27.42	7 27 12.0	96.28	15	11 21 19.80	0 39 27.8	104.55
16	9 53 20.30	7 17 34.3	96.58	16	11 23 12.84	0 49 55.1	104.59
17	9 55 13.10	7 7 54.8	96.88	17	11 25 5.96	1 0 22.6	104.62
18	9 57 5.84	6 58 13.6	97.17	18	11 26 59.16	1 10 50.3	104.64
19	9 58 58.52	6 48 30.6	97.45	19	11 28 52.46	1 21 18.1	104.65
20	10 0 51.13	6 38 45.9	97.73	20	11 30 45.85	1 31 46.0	104.66
21	10 2 43.68	6 28 59.5	98.00	21	11 32 39.33	1 42 14.0	104.66
22	10 4 36.18	6 19 11.5	98.27	22	11 34 32.91	1 52 42.0	104.66
23	10 6 28.63	N. 6 9 21.9	98.53	23	11 36 26.60	S. 2 3 9.9	104.65
SATURDAY 14.				MONDAY 16.			
0	10 8 21.02	N. 5 59 30.7	98.78	0	11 38 20.39	S. 2 13 37.8	104.63
1	10 10 13.37	5 49 38.0	99.04	1	11 40 14.29	2 24 5.6	104.61
2	10 12 5.68	5 39 43.7	99.29	2	11 42 8.30	2 34 33.3	104.58
3	10 13 57.95	5 29 48.0	99.53	3	11 44 2.42	2 45 0.7	104.55
4	10 15 50.18	5 19 50.8	99.76	4	11 45 56.67	2 55 28.0	104.51
5	10 17 42.38	5 9 52.3	99.99	5	11 47 51.03	3 5 55.1	104.46
6	10 19 34.55	4 59 52.3	100.22	6	11 49 45.52	3 16 21.8	104.40
7	10 21 26.69	4 49 51.0	100.44	7	11 51 40.14	3 26 48.2	104.34
8	10 23 18.80	4 39 48.4	100.65	8	11 53 34.89	3 37 14.2	104.27
9	10 25 10.89	4 29 44.5	100.86	9	11 55 29.77	3 47 39.9	104.20
10	10 27 2.97	4 19 39.3	101.07	10	11 57 24.80	3 58 5.0	104.11
11	10 28 55.03	4 9 32.9	101.27	11	11 59 19.96	4 8 29.7	104.02
12	10 30 47.08	3 59 25.3	101.46	12	12 1 15.27	4 18 53.9	103.93
13	10 32 39.12	3 49 16.6	101.65	13	12 3 10.73	4 29 17.5	103.83
14	10 34 31.16	3 39 6.7	101.83	14	12 5 6.33	4 39 40.4	103.72
15	10 36 23.19	3 28 55.7	102.00	15	12 7 2.09	4 50 2.8	103.60
16	10 38 15.23	3 18 43.7	102.17	16	12 8 58.00	5 0 24.4	103.48
17	10 40 7.27	3 8 30.7	102.34	17	12 10 54.08	5 10 45.2	103.34
18	10 41 59.31	2 58 16.6	102.50	18	12 12 50.32	5 21 5.3	103.20
19	10 43 51.37	2 48 1.6	102.65	19	12 14 46.72	5 31 24.5	103.06
20	10 45 43.45	2 37 45.7	102.80	20	12 16 43.30	5 41 42.9	102.90
21	10 47 35.54	2 27 28.9	102.94	21	12 18 40.04	5 52 0.3	102.74
22	10 49 27.65	2 17 11.3	103.08	22	12 20 36.97	6 2 16.7	102.58
23	10 51 19.78	2 6 52.8	103.21	23	12 22 34.07	6 12 32.2	102.40
24	10 53 11.94	N. 1 56 33.5		24	12 24 31.35	S. 6 22 46.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 17.				THURSDAY 19.			
0	h m s	° ' "	"	0	h m s	° ' "	"
1	12 24 31.35	S. 6 22 46.6	102.22	1	14 2 47.21	S. 13 57 14.7	83.23
2	12 26 28.81	6 32 59.9	102.03	2	14 4 56.52	14 5 34.1	82.60
3	12 28 26.46	6 43 12.1	101.83	3	14 7 6.12	14 13 49.7	81.95
4	12 30 24.31	6 53 23.0	101.62	4	14 9 16.02	14 22 1.4	81.30
5	12 32 22.34	7 3 32.7	101.41	5	14 11 26.21	14 30 9.2	80.65
6	12 34 20.57	7 13 41.2	101.18	6	14 13 36.70	14 38 13.1	79.97
7	12 36 19.00	7 23 48.3	100.95	7	14 15 47.48	14 46 12.9	79.28
8	12 38 17.64	7 33 54.0	100.72	8	14 17 58.56	14 54 8.6	78.58
9	12 40 16.47	7 43 58.3	100.47	9	14 20 9.93	15 2 0.1	77.88
10	12 42 15.52	7 54 1.1	100.22	10	14 22 21.60	15 9 47.4	77.17
11	12 44 14.77	8 4 2.4	99.95	11	14 24 33.58	15 17 30.4	76.44
12	12 46 14.24	8 14 2.1	99.68	12	14 26 45.85	15 25 9.1	75.70
13	12 48 13.93	8 24 0.2	99.40	13	14 28 58.42	15 32 43.3	74.95
14	12 50 13.83	8 33 56.6	99.11	14	14 31 11.29	15 40 13.0	74.20
15	12 52 13.96	8 43 51.2	98.81	15	14 33 24.46	15 47 38.2	73.43
16	12 54 14.31	8 53 44.1	98.51	16	14 35 37.92	15 54 58.7	72.64
17	12 56 14.89	9 3 35.1	98.19	17	14 37 51.69	16 2 14.6	71.85
18	12 58 15.69	9 13 24.3	97.87	18	14 40 5.76	16 9 25.7	71.05
19	13 0 16.73	9 23 11.5	97.54	19	14 42 20.12	16 16 32.0	70.24
20	13 2 18.00	9 32 56.8	97.20	20	14 44 34.78	16 23 33.5	69.42
21	13 4 19.51	9 42 40.0	96.85	21	14 46 49.75	16 30 30.0	68.59
22	13 6 21.26	9 52 21.1	96.49	22	14 49 5.01	16 37 21.5	67.74
23	13 8 23.26	10 2 0.0	96.13	23	14 51 20.57	16 44 8.0	66.89
24	13 10 25.49	S. 10 11 36.8	95.75	24	14 53 36.42	S. 16 50 49.3	66.02
WEDNESDAY 18.				FRIDAY 20.			
0	13 12 27.98	S. 10 21 11.3	95.37	0	14 55 52.57	S. 16 57 25.5	65.15
1	13 14 30.71	10 30 43.5	94.97	1	14 58 9.02	17 3 56.4	64.26
2	13 16 33.70	10 40 13.3	94.57	2	15 0 25.76	17 10 22.0	63.36
3	13 18 36.94	10 49 40.8	94.16	3	15 2 42.79	17 16 42.2	62.46
4	13 20 40.43	10 59 5.7	93.73	4	15 5 0.11	17 22 56.9	61.54
5	13 22 44.19	11 8 28.1	93.30	5	15 7 17.73	17 29 6.2	60.61
6	13 24 48.20	11 17 47.9	92.86	6	15 9 35.63	17 35 9.8	59.67
7	13 26 52.48	11 27 5.1	92.41	7	15 11 53.83	17 41 7.9	58.72
8	13 28 57.02	11 36 19.5	91.95	8	15 14 12.31	17 47 0.2	57.77
9	13 31 1.83	11 45 31.2	91.48	9	15 16 31.07	17 52 46.8	56.80
10	13 33 6.91	11 54 40.0	91.00	10	15 18 50.11	17 58 27.6	55.82
11	13 35 12.26	12 3 46.0	90.51	11	15 21 9.44	18 4 2.6	54.83
12	13 37 17.88	12 12 49.0	90.01	12	15 23 29.04	18 9 31.5	53.83
13	13 39 23.77	12 21 49.1	89.50	13	15 25 48.92	18 14 54.5	52.82
14	13 41 29.94	12 30 46.0	88.98	14	15 28 9.08	18 20 11.4	51.80
15	13 43 36.39	12 39 39.9	88.45	15	15 30 29.51	18 25 22.3	50.78
16	13 45 43.12	12 48 30.6	87.92	16	15 32 50.22	18 30 26.9	49.74
17	13 47 50.13	12 57 18.1	87.37	17	15 35 11.19	18 35 25.4	48.69
18	13 49 57.43	13 6 2.3	86.80	18	15 37 32.42	18 40 17.5	47.63
19	13 52 5.01	13 14 43.1	86.23	19	15 39 53.92	18 45 3.3	46.57
20	13 54 12.87	13 23 20.5	85.65	20	15 42 15.68	18 49 42.7	45.49
21	13 56 21.02	13 31 54.4	85.07	21	15 44 37.69	18 54 15.6	44.40
22	13 58 29.46	13 40 24.8	84.47	22	15 46 59.06	18 58 42.0	43.31
23	14 0 38.19	13 48 51.6	83.85	23	15 49 22.48	19 3 1.9	42.20
24	14 2 47.21	S. 13 57 14.7		24	15 51 45.25	S. 19 7 15.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 21.				MONDAY 23.			
0	h m s	S. ° ' "	"	0	h m s	S. ° ' "	"
0	15 51 45.25	19 7 15.1	41.10	0	17 49 29.65	20 6 39.8	19.28
1	15 54 8.27	19 11 21.7	39.98	1	17 51 59.23	20 4 44.1	20.60
2	15 56 31.52	19 15 21.5	38.85	2	17 54 28.82	20 2 40.5	21.92
3	15 58 55.02	19 19 14.6	37.72	3	17 56 58.41	20 0 29.0	23.24
4	16 1 18.75	19 23 0.9	36.57	4	17 59 28.00	19 58 9.5	24.56
5	16 3 42.71	19 26 40.3	35.42	5	18 1 57.58	19 55 42.2	25.87
6	16 6 6.91	19 30 12.8	34.25	6	18 4 27.15	19 53 7.0	27.18
7	16 8 31.32	19 33 38.3	33.08	7	18 6 56.70	19 50 23.9	28.49
8	16 10 55.96	19 36 56.8	31.90	8	18 9 26.23	19 47 32.9	29.80
9	16 13 20.81	19 40 8.2	30.72	9	18 11 55.73	19 44 34.2	31.10
10	16 15 45.88	19 43 12.6	29.53	10	18 14 25.20	19 41 27.6	32.40
11	16 18 11.15	19 46 9.8	28.33	11	18 16 54.63	19 38 13.2	33.70
12	16 20 36.63	19 48 59.8	27.13	12	18 19 24.01	19 34 51.0	34.99
13	16 23 2.31	19 51 42.6	25.92	13	18 21 53.35	19 31 21.1	36.28
14	16 25 28.19	19 54 18.1	24.70	14	18 24 22.63	19 27 43.4	37.56
15	16 27 54.25	19 56 46.2	23.47	15	18 26 51.86	19 23 58.0	38.84
16	16 30 20.51	19 59 7.0	22.24	16	18 29 21.02	19 20 5.0	40.12
17	16 32 46.95	20 1 20.5	21.00	17	18 31 50.11	19 16 4.3	41.39
18	16 35 13.56	20 3 26.5	19.75	18	18 34 19.14	19 11 56.0	42.65
19	16 37 40.35	20 5 25.0	18.50	19	18 36 48.08	19 7 40.1	43.91
20	16 40 7.30	20 7 16.0	17.25	20	18 39 16.95	19 3 16.6	45.17
21	16 42 34.42	20 8 59.5	15.99	21	18 41 45.73	18 58 45.6	46.42
22	16 45 1.70	20 10 35.4	14.72	22	18 44 14.42	18 54 7.1	47.67
23	16 47 29.13	S. 20 12 3.8	13.45	23	18 46 43.01	S. 18 49 21.1	48.90
SUNDAY 22.				TUESDAY 24.			
0	h m s	S. ° ' "	"	0	h m s	S. ° ' "	"
0	16 49 56.71	S. 20 13 24.4	12.17	0	18 49 11.51	S. 18 44 27.7	50.13
1	16 52 24.43	20 14 37.4	10.90	1	18 51 39.91	18 39 26.9	51.36
2	16 54 52.30	20 15 42.8	9.62	2	18 54 8.20	18 34 18.7	52.58
3	16 57 20.30	20 16 40.5	8.32	3	18 56 36.37	18 29 3.2	53.79
4	16 59 48.42	20 17 30.4	7.03	4	18 59 4.44	18 23 40.5	55.00
5	17 2 16.67	20 18 12.6	5.73	5	19 1 32.38	18 18 10.5	56.20
6	17 4 45.04	20 18 46.9	4.43	6	19 4 0.21	18 12 33.3	57.39
7	17 7 13.52	20 19 13.5	3.13	7	19 6 27.91	18 6 49.0	58.57
8	17 9 42.10	20 19 32.3	1.83	8	19 8 55.47	18 0 57.5	59.75
9	17 12 10.79	20 19 43.3	0.52	9	19 11 22.91	17 54 59.1	60.91
10	17 14 39.58	20 19 46.4	0.80	10	19 13 50.21	17 48 53.6	62.07
11	17 17 8.45	20 19 41.6	2.11	11	19 16 17.37	17 42 41.2	63.22
12	17 19 37.42	20 19 29.0	3.42	12	19 18 44.39	17 36 21.8	64.37
13	17 22 6.46	20 19 8.5	4.74	13	19 21 11.26	17 29 55.6	65.50
14	17 24 35.58	20 18 40.1	6.06	14	19 23 37.98	17 23 22.6	66.62
15	17 27 4.76	20 18 3.7	7.38	15	19 26 4.55	17 16 42.9	67.74
16	17 29 34.01	20 17 19.5	8.70	16	19 28 30.97	17 9 56.4	68.85
17	17 32 3.32	20 16 27.3	10.02	17	19 30 57.23	17 3 3.3	69.95
18	17 34 32.68	20 15 27.2	11.35	18	19 33 23.32	16 56 3.6	71.04
19	17 37 2.09	20 14 19.1	12.67	19	19 35 49.26	16 48 57.4	72.12
20	17 39 31.54	20 13 3.1	13.99	20	19 38 15.04	16 41 44.7	73.19
21	17 42 1.03	20 11 39.2	15.31	21	19 40 40.65	16 34 25.6	74.25
22	17 44 30.55	20 10 7.3	16.63	22	19 43 6.09	16 27 0.1	75.30
23	17 47 0.09	20 8 27.5	17.95	23	19 45 31.35	16 19 28.3	76.34
24	17 49 29.65	S. 20 6 39.8		24	19 47 56.45	S. 16 11 50.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
WEDNESDAY 25.				FRIDAY 27.			
0	19 47 56.45	S. 16 11 50.2	77.37	0	21 40 24.92	S. 8 24 40.2	113.50
1	19 50 21.37	16 4 6.0	78.39	1	21 42 41.18	8 13 19.2	113.95
2	19 52 46.12	15 56 15.6	79.40	2	21 44 57.28	8 1 55.5	114.40
3	19 55 10.69	15 48 19.2	80.40	3	21 47 13.23	7 50 29.1	114.83
4	19 57 35.09	15 40 16.8	81.39	4	21 49 29.04	7 39 0.1	115.25
5	19 59 59.30	15 32 8.5	82.37	5	21 51 44.69	7 27 28.6	115.66
6	20 2 23.33	15 23 54.3	83.34	6	21 54 0.20	7 15 54.6	116.06
7	20 4 47.17	15 15 34.2	84.30	7	21 56 15.57	7 4 18.3	116.44
8	20 7 10.84	15 7 8.4	85.25	8	21 58 30.80	6 52 39.7	116.81
9	20 9 34.32	14 58 37.0	86.18	9	22 0 45.89	6 40 58.8	117.17
10	20 11 57.61	14 49 59.9	87.10	10	22 3 0.84	6 29 15.8	117.52
11	20 14 20.71	14 41 17.3	88.02	11	22 5 15.66	6 17 30.7	117.85
12	20 16 43.63	14 32 29.1	88.92	12	22 7 30.36	6 5 43.6	118.17
13	20 19 6.36	14 23 35.6	89.81	13	22 9 44.92	5 53 54.6	118.48
14	20 21 28.90	14 14 36.7	90.69	14	22 11 59.36	5 42 3.7	118.78
15	20 23 51.26	14 5 32.6	91.56	15	22 14 13.68	5 30 11.0	119.07
16	20 26 13.42	13 56 23.3	92.41	16	22 16 27.88	5 18 16.6	119.34
17	20 28 35.39	13 47 8.8	93.26	17	22 18 41.96	5 6 20.5	119.60
18	20 30 57.17	13 37 49.2	94.09	18	22 20 55.92	4 54 22.9	119.85
19	20 33 18.77	13 28 24.7	94.91	19	22 23 9.78	4 42 23.8	120.09
20	20 35 40.17	13 18 55.2	95.72	20	22 25 23.52	4 30 23.2	120.32
21	20 38 1.38	13 9 20.9	96.52	21	22 27 37.16	4 18 21.3	120.53
22	20 40 22.41	12 59 41.7	97.30	22	22 29 50.70	4 6 18.2	120.73
23	20 42 43.24	S. 12 49 57.9	98.08	23	22 32 4.13	S. 3 54 13.8	120.92
THURSDAY 26.				SATURDAY 28.			
0	20 45 3.88	S. 12 40 9.4	98.84	0	22 34 17.47	S. 3 42 8.3	121.09
1	20 47 24.34	12 30 16.4	99.59	1	22 36 30.71	3 30 1.8	121.25
2	20 49 44.61	12 20 18.8	100.33	2	22 38 43.86	3 17 54.2	121.41
3	20 52 4.69	12 10 16.8	101.06	3	22 40 56.92	3 5 45.8	121.55
4	20 54 24.58	12 0 10.5	101.77	4	22 43 9.89	2 53 36.5	121.68
5	20 56 44.29	11 49 59.8	102.47	5	22 45 22.78	2 41 26.4	121.80
6	20 59 3.81	11 39 45.0	103.17	6	22 47 35.59	2 29 15.6	121.90
7	21 1 23.15	11 29 26.0	103.85	7	22 49 48.33	2 17 4.2	122.00
8	21 3 42.30	11 19 2.9	104.52	8	22 52 0.98	2 4 52.2	122.08
9	21 6 1.27	11 8 35.8	105.17	9	22 54 13.57	1 52 39.7	122.15
10	21 8 20.06	10 58 4.8	105.81	10	22 56 26.09	1 40 26.8	122.21
11	21 10 38.67	10 47 30.0	106.44	11	22 58 38.54	1 28 13.5	122.26
12	21 12 57.10	10 36 51.3	107.05	12	23 0 50.93	1 15 59.9	122.29
13	21 15 15.35	10 26 9.0	107.66	13	23 3 3.26	1 3 46.2	122.32
14	21 17 33.43	10 15 23.0	108.25	14	23 5 15.53	0 51 32.3	122.33
15	21 19 51.34	10 4 33.5	108.83	15	23 7 27.75	0 39 18.3	122.33
16	21 22 9.07	9 53 40.5	109.40	16	23 9 39.92	0 27 4.3	122.32
17	21 24 26.63	9 42 44.1	109.95	17	23 11 52.04	0 14 50.5	122.29
18	21 26 44.03	9 31 44.4	110.50	18	23 14 4.12	S. 0 2 36.7	122.26
19	21 29 1.25	9 20 41.4	111.03	19	23 16 16.16	N. 0 9 36.9	122.21
20	21 31 18.31	9 9 35.2	111.55	20	23 18 28.15	0 21 50.1	122.15
21	21 33 35.20	8 58 25.9	112.05	21	23 20 40.11	0 34 3.1	122.08
22	21 35 51.94	8 47 13.6	112.55	22	23 22 52.04	0 46 15.6	122.00
23	21 38 8.51	8 35 58.3	113.03	23	23 25 3.94	0 58 27.6	121.91
	21 40 24.92	S. 8 24 40.2		24	23 27 15.81	N. 1 10 39.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 29.				TUESDAY 31.			
0	23 27 15 ^s 81 ^m	N. 1 10 39 ^o 0 ⁿ	121 ^s 80 ⁿ	0	1 13 6 ^s 73 ^m	N. 10 22 55 ^o 8 ⁿ	103 ^s 78 ⁿ
1	23 29 27 ^s 66 ^m	1 22 49 ^o 8 ⁿ	121 ^s 69 ⁿ	1	1 15 20 ^s 42 ^m	10 33 18 ^o 5 ⁿ	103 ^s 15 ⁿ
2	23 31 39 ^s 48 ^m	1 34 59 ^o 9 ⁿ	121 ^s 56 ⁿ	2	1 17 34 ^s 19 ^m	10 43 37 ^o 4 ⁿ	102 ^s 51 ⁿ
3	23 33 51 ^s 29 ^m	1 47 9 ^o 2 ⁿ	121 ^s 42 ⁿ	3	1 19 48 ^s 05 ^m	10 53 52 ^o 4 ⁿ	101 ^s 85 ⁿ
4	23 36 3 ^s 09 ^m	1 59 17 ^o 8 ⁿ	121 ^s 27 ⁿ	4	1 22 2 ^s 00 ^m	11 4 3 ^o 5 ⁿ	101 ^s 19 ⁿ
5	23 38 14 ^s 87 ^m	2 11 25 ^o 4 ⁿ	121 ^s 11 ⁿ	5	1 24 16 ^s 04 ^m	11 14 10 ^o 7 ⁿ	100 ^s 52 ⁿ
6	23 40 26 ^s 64 ^m	2 23 32 ^o 0 ⁿ	120 ^s 94 ⁿ	6	1 26 30 ^s 17 ^m	11 24 13 ^o 8 ⁿ	99 ^s 83 ⁿ
7	23 42 38 ^s 40 ^m	2 35 37 ^o 6 ⁿ	120 ^s 75 ⁿ	7	1 28 44 ^s 39 ^m	11 34 12 ^o 7 ⁿ	99 ^s 14 ⁿ
8	23 44 50 ^s 16 ^m	2 47 42 ^o 1 ⁿ	120 ^s 56 ⁿ	8	1 30 58 ^s 70 ^m	11 44 7 ^o 6 ⁿ	98 ^s 44 ⁿ
9	23 47 1 ^s 92 ^m	2 59 45 ^o 4 ⁿ	120 ^s 35 ⁿ	9	1 33 13 ^s 11 ^m	11 53 58 ^o 2 ⁿ	97 ^s 72 ⁿ
10	23 49 13 ^s 68 ^m	3 11 47 ^o 5 ⁿ	120 ^s 13 ⁿ	10	1 35 27 ^s 61 ^m	12 3 44 ^o 5 ⁿ	97 ^s 00 ⁿ
11	23 51 25 ^s 45 ^m	3 23 48 ^o 3 ⁿ	119 ^s 91 ⁿ	11	1 37 42 ^s 20 ^m	12 13 26 ^o 5 ⁿ	96 ^s 27 ⁿ
12	23 53 37 ^s 23 ^m	3 35 47 ^o 8 ⁿ	119 ^s 67 ⁿ	12	1 39 56 ^s 88 ^m	12 23 4 ^o 2 ⁿ	95 ^s 53 ⁿ
13	23 55 49 ^s 01 ^m	3 47 45 ^o 8 ⁿ	119 ^s 41 ⁿ	13	1 42 11 ^s 66 ^m	12 32 37 ^o 4 ⁿ	94 ^s 79 ⁿ
14	23 58 0 ^s 81 ^m	3 59 42 ^o 3 ⁿ	119 ^s 15 ⁿ	14	1 44 26 ^s 54 ^m	12 42 6 ^o 1 ⁿ	94 ^s 03 ⁿ
15	0 0 12 ^s 62 ^m	4 11 37 ^o 2 ⁿ	118 ^s 88 ⁿ	15	1 46 41 ^s 51 ^m	12 51 30 ^o 3 ⁿ	93 ^s 26 ⁿ
16	0 2 24 ^s 45 ^m	4 23 30 ^o 4 ⁿ	118 ^s 59 ⁿ	16	1 48 56 ^s 58 ^m	13 0 49 ^o 8 ⁿ	92 ^s 48 ⁿ
17	0 4 36 ^s 30 ^m	4 35 21 ^o 9 ⁿ	118 ^s 30 ⁿ	17	1 51 11 ^s 75 ^m	13 10 4 ^o 7 ⁿ	91 ^s 70 ⁿ
18	0 6 48 ^s 18 ^m	4 47 11 ^o 7 ⁿ	117 ^s 99 ⁿ	18	1 53 27 ^s 01 ^m	13 19 14 ^o 9 ⁿ	90 ^s 90 ⁿ
19	0 9 0 ^s 08 ^m	4 58 59 ^o 6 ⁿ	117 ^s 67 ⁿ	19	1 55 42 ^s 37 ^m	13 28 20 ^o 3 ⁿ	90 ^s 10 ⁿ
20	0 11 12 ^s 00 ^m	5 10 45 ^o 6 ⁿ	117 ^s 34 ⁿ	20	1 57 57 ^s 82 ^m	13 37 20 ^o 9 ⁿ	89 ^s 29 ⁿ
21	0 13 23 ^s 96 ^m	5 22 29 ^o 6 ⁿ	117 ^s 00 ⁿ	21	2 0 13 ^s 37 ^m	13 46 16 ^o 7 ⁿ	88 ^s 47 ⁿ
22	0 15 35 ^s 96 ^m	5 34 11 ^o 6 ⁿ	116 ^s 65 ⁿ	22	2 2 29 ^s 02 ^m	13 55 7 ^o 5 ⁿ	87 ^s 64 ⁿ
23	0 17 47 ^s 98 ^m	N. 5 45 51 ^o 5 ⁿ	116 ^s 29 ⁿ	23	2 4 44 ^s 77 ^m	N. 14 3 53 ^o 3 ⁿ	86 ^s 80 ⁿ
MONDAY 30.				WEDNESDAY, JUNE 1.			
0	0 20 0 ^s 05 ^m	N. 5 57 29 ^o 2 ⁿ	115 ^s 91 ⁿ	0	2 7 0 ^s 61 ^m	N. 14 12 34 ^o 1 ⁿ	
1	0 22 12 ^s 16 ^m	6 9 4 ^o 7 ⁿ	115 ^s 53 ⁿ	PHASES OF THE MOON.			
2	0 24 24 ^s 31 ^m	6 20 37 ^o 8 ⁿ	115 ^s 13 ⁿ				
3	0 26 36 ^s 51 ^m	6 32 8 ^o 6 ⁿ	114 ^s 73 ⁿ				
4	0 28 48 ^s 75 ^m	6 43 36 ^o 9 ⁿ	114 ^s 31 ⁿ				
5	0 31 1 ^s 05 ^m	6 55 2 ^o 8 ⁿ	113 ^s 88 ⁿ				
6	0 33 13 ^s 39 ^m	7 6 26 ^o 1 ⁿ	113 ^s 45 ⁿ				
7	0 35 25 ^s 79 ^m	7 17 46 ^o 8 ⁿ	113 ^s 00 ⁿ				
8	0 37 38 ^s 25 ^m	7 29 4 ^o 8 ⁿ	112 ^s 54 ⁿ				
9	0 39 50 ^s 76 ^m	7 40 20 ^o 0 ⁿ	112 ^s 07 ⁿ				
10	0 42 3 ^s 34 ^m	7 51 32 ^o 4 ⁿ	111 ^s 59 ⁿ				
11	0 44 15 ^s 97 ^m	8 2 42 ^o 0 ⁿ	111 ^s 10 ⁿ				
12	0 46 28 ^s 67 ^m	8 13 48 ^o 6 ⁿ	110 ^s 60 ⁿ				
13	0 48 41 ^s 44 ^m	8 24 52 ^o 2 ⁿ	110 ^s 09 ⁿ				
14	0 50 54 ^s 27 ^m	8 35 52 ^o 8 ⁿ	109 ^s 57 ⁿ				
15	0 53 7 ^s 18 ^m	8 46 50 ^o 2 ⁿ	109 ^s 04 ⁿ				
16	0 55 20 ^s 15 ^m	8 57 44 ^o 4 ⁿ	108 ^s 49 ⁿ				
17	0 57 33 ^s 20 ^m	9 8 35 ^o 4 ⁿ	107 ^s 94 ⁿ				
18	0 59 46 ^s 33 ^m	9 19 23 ^o 0 ⁿ	107 ^s 38 ⁿ				
19	1 1 59 ^s 53 ^m	9 30 7 ^o 3 ⁿ	106 ^s 81 ⁿ				
20	1 4 12 ^s 80 ^m	9 40 48 ^o 1 ⁿ	106 ^s 22 ⁿ				
21	1 6 26 ^s 16 ^m	9 51 25 ^o 4 ⁿ	105 ^s 63 ⁿ				
22	1 8 39 ^s 60 ^m	10 1 59 ^o 2 ⁿ	105 ^s 03 ⁿ				
23	1 10 53 ^s 12 ^m	10 12 29 ^o 4 ⁿ	104 ^s 41 ⁿ				
24	1 13 6 ^s 73 ^m	N. 10 22 55 ^o 8 ⁿ					

PHASES OF THE MOON.

- New Moon - - 5 12 13^h 8^m
 ☾ First Quarter - 13 6 20^h 7^m
 ○ Full Moon - - 21 1 24^h 1^m
 ☾ Last Quarter - 27 21 20^h 7^m

- ☾ Apogee - - - - 13 9^h
 ☾ Perigee - - - - 26 0^h

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	Jupiter W.	107 43 2	2213	109 31 10	2212	111 19 19	2212	113 7 29	2212
	Antares W.	94 34 32	2275	96 21 8	2275	98 7 44	2275	99 54 20	2276
	α Aquilæ W.	46 47 26	3058	48 16 27	3014	49 46 23	2974	51 17 8	2938
	SUN E.	59 21 17	2553	57 41 17	2553	56 1 17	2552	54 21 16	2552
2	α Aquilæ W.	59 0 42	2811	60 34 56	2794	62 9 32	2778	63 44 29	2765
	SUN E.	46 1 19	2557	44 21 25	2559	42 41 33	2561	41 1 45	2564
8	SUN W.	30 43 57	3040	32 13 20	3056	33 42 24	3070	35 11 10	3086
	Pollux E.	33 52 10	3005	32 22 4	3048	30 52 51	3095	29 24 35	3147
	Regulus E.	69 15 45	2728	67 39 42	2742	66 3 58	2757	64 28 33	2772
	Saturn E.	113 42 12	2711	112 5 46	2725	110 29 39	2738	108 53 49	2751
9	SUN W.	42 30 27	3158	43 57 26	3173	45 24 8	3187	46 50 33	3200
	Regulus E.	56 36 16	2844	55 2 45	2859	53 29 33	2873	51 56 39	2887
	Saturn E.	100 59 3	2817	99 24 57	2830	97 51 8	2843	96 17 36	2855
	Spica E.	110 18 33	2812	108 44 21	2826	107 10 27	2839	105 36 50	2851
10	SUN W.	53 58 40	3265	55 23 33	3277	56 48 11	3288	58 12 36	3300
	Regulus E.	44 16 36	2956	42 45 28	2970	41 14 37	2984	39 44 4	2997
	Saturn E.	88 33 50	2915	87 1 50	2926	85 30 4	2936	83 58 31	2948
	Spica E.	97 52 40	2911	96 20 35	2922	94 48 44	2933	93 17 7	2943
11	SUN W.	65 11 31	3351	66 34 44	3360	67 57 46	3368	69 20 39	3377
	Regulus E.	32 15 39	3069	30 46 52	3085	29 18 24	3101	27 50 15	3119
	Saturn E.	76 24 3	2996	74 53 45	3004	73 23 37	3013	71 53 40	3021
	Spica E.	85 42 10	2990	84 11 45	2998	82 41 30	3007	81 11 26	3014
	Jupiter E.	116 51 33	2946	115 20 12	2954	113 49 1	2961	112 17 59	2969
12	SUN W.	76 12 55	3410	77 35 0	3415	78 57 0	3419	80 18 55	3424
	Pollux W.	20 31 46	3815	21 46 32	3725	23 2 52	3652	24 20 31	3591
	Saturn E.	64 26 11	3054	62 57 5	3060	61 28 6	3065	59 59 13	3069
	Spica E.	73 43 9	3044	72 13 51	3049	70 44 39	3053	69 15 32	3057
	Jupiter E.	104 44 59	2999	103 14 45	3003	101 44 36	3008	100 14 33	3011
13	SUN W.	87 7 29	3437	88 29 4	3437	89 50 39	3438	91 12 12	3438
	Pollux W.	31 2 22	3398	32 24 41	3373	33 47 28	3351	35 10 40	3331
	Saturn E.	52 36 8	3087	51 7 43	3090	49 39 21	3092	48 11 2	3092
	Spica E.	61 50 58	3069	60 22 11	3070	58 53 25	3070	57 24 39	3070
	Jupiter E.	92 45 15	3023	91 15 31	3024	89 45 48	3025	88 16 6	3024
	Antares E.	107 15 33	3098	105 47 21	3098	104 19 9	3098	102 50 57	3098
14	SUN W.	98 0 14	3430	99 21 57	3426	100 43 44	3422	102 5 35	3418
	Pollux W.	42 11 51	3253	43 36 57	3240	45 2 19	3227	46 27 56	3215
	Saturn E.	40 49 55	3100	39 21 45	3101	37 53 36	3101	36 25 28	3102
	Spica E.	50 0 38	3063	48 31 43	3060	47 2 44	3056	45 33 41	3053
	Jupiter E.	80 47 21	3017	79 17 29	3014	77 47 33	3011	76 17 34	3006
	Antares E.	95 29 41	3089	94 1 18	3086	92 32 51	3083	91 4 21	3078
15	SUN W.	108 56 14	3389	110 18 43	3382	111 41 20	3375	113 4 5	3366
	Pollux W.	53 39 30	3157	55 6 30	3146	56 33 44	3135	58 1 11	3124
	Regulus W.	16 44 18	3276	18 8 58	3233	19 34 28	3197	21 0 41	3165
	Saturn E.	29 5 6	3110	27 37 9	3114	26 9 17	3120	24 41 32	3128
	Spica E.	38 7 3	3026	36 37 23	3019	35 7 34	3013	33 37 37	3006

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Jupiter W.	114 55 39	2212	116 43 48	2213	118 31 56	2214	120 20 3	2215
	Antares W.	101 40 55	2276	103 27 30	2277	105 14 3	2279	107 0 34	2281
	α Aquilæ W.	52 48 39	2907	54 20 49	2879	55 53 35	2853	57 26 54	2831
	Sun E.	52 41 15	2552	51 1 14	2553	49 21 14	2554	47 41 16	2555
2	α Aquilæ W.	65 19 43	2754	66 55 12	2744	68 30 54	2736	70 6 46	2729
	Sun E.	39 22 0	2567	37 42 19	2571	36 2 44	2574	34 23 13	2578
8	Sun W.	36 39 37	3100	38 7 47	3115	39 35 38	3130	41 3 11	3144
	Pollux E.	27 57 22	3205	26 31 18	3271	25 6 33	3347	23 43 16	3435
	Regulus E.	62 53 28	2868	61 18 42	2800	59 44 14	2815	58 10 6	2829
	Saturn E.	107 18 17	2764	105 43 2	2778	104 8 5	2791	102 33 25	2804
9	Sun W.	48 16 42	3214	49 42 35	3227	51 8 12	3241	52 33 33	3253
	Regulus E.	50 24 3	2900	48 51 44	2915	47 19 44	2928	45 48 1	2942
	Saturn E.	94 44 20	2867	93 11 19	2880	91 38 34	2891	90 6 4	2904
	Spica E.	104 3 28	2864	102 30 23	2876	100 57 33	2888	99 24 59	2900
10	Sun W.	59 36 47	3311	61 0 46	3321	62 24 33	3332	63 48 8	3342
	Regulus E.	38 13 48	3011	36 43 49	3026	35 14 8	3040	33 44 45	3054
	Saturn E.	82 27 13	2958	80 56 7	2968	79 25 14	2977	77 54 33	2986
	Spica E.	91 45 43	2954	90 14 32	2963	88 43 33	2973	87 12 46	2981
11	Sun W.	70 43 22	3384	72 5 57	3391	73 28 24	3398	74 50 43	3404
	Regulus E.	26 22 28	3137	24 55 4	3157	23 28 3	3180	22 1 30	3206
	Saturn E.	70 23 53	3027	68 54 14	3035	67 24 45	3042	65 55 24	3048
	Spica E.	79 41 30	3021	78 11 43	3027	76 42 4	3034	75 12 33	3039
	Jupiter E.	110 47 7	2975	109 16 23	2982	107 45 48	2988	106 15 20	2993
12	Sun W.	81 40 45	3428	83 2 30	3430	84 24 13	3433	85 45 52	3435
	Pollux W.	25 39 15	3539	26 58 56	3496	28 19 25	3459	29 40 35	3426
	Saturn E.	58 30 26	3074	57 1 44	3078	55 33 8	3082	54 4 36	3085
	Spica E.	67 46 30	3061	66 17 33	3063	64 48 38	3066	63 19 47	3068
	Jupiter E.	98 44 34	3015	97 14 40	3017	95 44 49	3019	94 15 0	3022
13	Sun W.	92 33 46	3437	93 55 20	3436	95 16 56	3434	96 38 34	3432
	Pollux W.	36 34 15	3313	37 58 11	3296	39 22 27	3281	40 47 0	3266
	Saturn E.	46 42 45	3096	45 14 31	3097	43 46 18	3098	42 18 6	3099
	Spica E.	55 55 53	3070	54 27 7	3069	52 58 19	3068	51 29 30	3065
	Jupiter E.	86 46 23	3024	85 16 40	3023	83 46 56	3021	82 17 9	3020
	Antares E.	101 22 45	3097	99 54 32	3096	98 26 17	3094	96 58 0	3092
14	Sun W.	103 27 31	3414	104 49 32	3408	106 11 40	3403	107 33 53	3396
	Pollux W.	47 53 47	3203	49 19 52	3192	50 46 11	3180	52 12 44	3169
	Saturn E.	34 57 21	3102	33 29 14	3104	32 1 9	3106	30 33 6	3108
	Spica E.	44 4 34	3048	42 35 20	3043	41 6 1	3038	39 36 36	3032
	Jupiter E.	74 47 29	3003	73 17 20	2998	71 47 4	2993	70 16 42	2986
	Antares E.	89 35 45	3074	88 7 4	3069	86 38 17	3064	85 9 24	3059
15	Sun W.	114 27 0	3358	115 50 4	3349	117 13 19	3340	118 36 44	3330
	Pollux W.	59 28 52	3113	60 56 46	3100	62 24 55	3089	63 53 18	3077
	Regulus W.	22 27 32	3138	23 54 55	3115	25 22 47	3093	26 51 6	3072
	Saturn E.	23 13 57	3139	21 46 34	3153	20 19 29	3172	18 52 46	3198
	Spica E.	32 7 31	2998	30 37 15	2989	29 6 48	2981	27 36 11	2972

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
15	Jupiter E.	68 46 12	2981	67 15 35	2974	65 44 50	2968	64 13 57	2960
	Antares E.	83 40 24	3052	82 11 16	3046	80 42 1	3039	79 12 37	3032
16	Sun W.	120 0 21	3320	121 24 10	3310	122 48 10	3298	124 12 24	3288
	Pollux W.	65 21 56	3053	66 50 48	3053	68 19 55	3041	69 49 17	3029
	Regulus W.	28 19 49	3065	29 48 56	3036	31 18 24	3018	32 48 14	3002
	Spica E.	26 5 23	2962	24 34 23	2952	23 3 10	2942	21 31 45	2932
	Jupiter E.	56 36 59	2918	55 5 3	2908	53 32 54	2898	52 0 32	2888
	Antares E.	71 43 15	2991	70 12 51	2982	68 42 16	2973	67 11 29	2963
17	Sun W.	131 16 55	3226	132 42 33	3214	134 8 26	3200	135 34 35	3187
	Pollux W.	77 19 59	2965	78 50 55	2952	80 22 8	2939	81 53 37	2927
	Regulus W.	40 22 21	2925	41 54 8	2910	43 26 14	2895	44 58 39	2880
	Jupiter E.	44 15 21	2832	42 41 35	2821	41 7 34	2808	39 33 17	2796
	Antares E.	59 34 25	2912	58 2 21	2901	56 30 3	2890	54 57 31	2878
	α Aquilæ E.	110 33 52	3337	109 10 23	3316	107 46 30	3295	106 22 13	3276
18	Pollux W.	89 35 14	2859	91 8 25	2847	92 41 52	2833	94 15 37	2820
	Regulus W.	52 45 29	2806	54 19 49	2792	55 54 27	2777	57 29 25	2763
	Jupiter E.	31 37 47	2733	30 1 51	2720	28 25 37	2706	26 49 5	2693
	Antares E.	47 11 18	2824	45 37 21	2814	44 3 11	2803	42 28 47	2793
	α Aquilæ E.	99 15 20	3186	97 48 54	3170	96 22 9	3154	94 55 5	3138
19	Pollux W.	102 8 37	2755	103 44 4	2744	105 19 46	2731	106 55 45	2719
	Regulus W.	65 29 1	2690	67 5 54	2676	68 43 6	2661	70 20 38	2648
	Saturn W.	21 57 9	2806	23 31 29	2773	25 6 32	2744	26 42 13	2718
	Antares E.	34 33 42	2751	32 58 9	2745	31 22 29	2741	29 46 43	2738
	α Aquilæ E.	87 35 14	3069	86 6 26	3057	84 37 24	3045	83 8 7	3035
20	Regulus W.	78 32 56	2580	80 12 19	2566	81 52 0	2553	83 31 59	2541
	Saturn W.	34 48 36	2612	36 27 15	2594	38 6 19	2577	39 45 46	2560
	Spica W.	24 36 7	2558	26 16 0	2545	27 56 11	2532	29 36 39	2520
	α Aquilæ E.	75 38 45	2993	74 8 23	2987	72 37 54	2983	71 7 20	2979
	Fomalhaut E.	104 19 44	3061	102 50 47	3041	101 21 25	3023	99 51 41	3006
21	Regulus W.	91 56 11	2482	93 37 50	2470	95 19 46	2460	97 1 56	2449
	Saturn W.	48 8 23	2487	49 49 54	2474	51 31 43	2462	53 13 50	2450
	Spica W.	38 3 18	2460	39 45 27	2449	41 27 52	2438	43 10 33	2427
	α Aquilæ E.	63 33 58	2983	62 3 24	2989	60 32 57	2997	59 2 40	3006
	Fomalhaut E.	92 17 55	2932	90 46 17	2921	89 14 25	2911	87 42 20	2901
	α Pegasi E.	110 2 31	2629	108 24 16	2614	106 45 40	2601	105 6 46	2588
	Mars E.	115 24 12	2734	113 48 17	2721	112 12 5	2708	110 35 36	2697
22	Regulus W.	105 36 22	2402	107 19 54	2393	109 3 39	2385	110 47 35	2378
	Saturn W.	61 48 29	2396	63 32 10	2386	65 16 5	2377	67 0 13	2368
	Spica W.	51 47 35	2379	53 31 40	2369	55 15 59	2361	57 0 29	2353
	Jupiter W.	22 2 6	2344	23 47 2	2334	25 32 12	2326	27 17 34	2317
	α Aquilæ E.	51 35 21	3097	50 7 7	3126	48 39 29	3159	47 12 31	3198
	Fomalhaut E.	79 59 17	2870	78 26 19	2867	76 53 18	2866	75 20 15	2866
	α Pegasi E.	96 47 59	2530	95 7 28	2521	93 26 44	2512	91 45 47	2503
	Mars E.	102 29 24	2643	100 51 27	2633	99 13 17	2624	97 34 54	2615
23	Saturn W.	75 43 49	2330	77 29 4	2324	79 14 28	2318	81 0 1	2313
	Spica W.	65 45 47	2318	67 31 21	2312	69 17 3	2306	71 2 54	2300

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
15	Jupiter E.	62 42 54	2952	61 11 41	2944	59 40 18	2935	58 8 44	2927
	Antares E.	77 43 4	3025	76 13 22	3017	74 43 30	3009	73 13 28	3000
16	Sun W.	125 36 50	3276	127 1 30	3264	128 26 24	3252	129 51 32	3239
	Pollux W.	71 18 54	3016	72 48 47	3004	74 18 55	2991	75 49 19	2978
	Regulus W.	34 18 24	2986	35 48 54	2970	37 19 44	2955	38 50 53	2940
	Spica E.	20 0 7	2922	18 28 16	2911	16 56 11	2899	15 23 51	2888
	Jupiter E.	50 27 58	2877	48 55 9	2867	47 22 8	2855	45 48 51	2844
	Antares E.	65 40 30	2953	64 9 18	2943	62 37 54	2932	61 6 16	2922
17	Sun W.	137 1 0	3173	138 27 41	3159	139 54 39	3145	141 21 54	3131
	Pollux W.	83 25 22	2913	84 57 25	2899	86 29 44	2886	88 2 21	2873
	Regulus W.	46 31 23	2866	48 4 26	2851	49 37 48	2836	51 11 29	2821
	Jupiter E.	37 58 44	2784	36 23 55	2771	34 48 49	2758	33 13 26	2746
	Antares E.	53 24 44	2868	51 51 44	2857	50 18 30	2845	48 45 1	2835
	α Aquilæ E.	104 57 34	3258	103 32 33	3239	102 7 10	3220	100 41 25	3203
18	Pollux W.	95 49 39	2807	97 23 58	2794	98 58 34	2781	100 33 27	2768
	Regulus W.	59 4 41	2748	60 40 18	2734	62 16 13	2720	63 52 27	2705
	Jupiter E.	25 12 16	2680	23 35 10	2667	21 57 46	2654	20 20 4	2641
	Antares E.	40 54 10	2783	39 19 20	2774	37 44 18	2766	36 9 5	2758
	α Aquilæ E.	93 27 42	3123	92 0 0	3109	90 32 2	3095	89 3 46	3082
19	Pollux W.	108 32 0	2707	110 8 30	2696	111 45 16	2686	113 22 15	2674
	Regulus W.	71 58 28	2634	73 36 37	2620	75 15 5	2607	76 53 51	2593
	Saturn W.	28 18 29	2694	29 55 17	2671	31 32 36	2650	33 10 23	2631
	Antares E.	28 10 53	2737	26 35 3	2739	24 59 15	2745	23 23 35	2754
	α Aquilæ E.	81 38 38	3025	80 8 56	3015	78 39 2	3007	77 8 58	3000
20	Regulus W.	85 12 15	2528	86 52 49	2516	88 33 40	2504	90 14 47	2492
	Saturn W.	41 25 36	2545	43 5 47	2530	44 46 19	2515	46 27 11	2501
	Spica W.	31 17 25	2507	32 58 28	2495	34 39 48	2483	36 21 25	2472
	α Aquilæ E.	69 36 41	2977	68 6 0	2977	66 35 18	2977	65 4 37	2979
	Fomalhaut E.	98 21 35	2989	96 51 8	2973	95 20 21	2959	93 49 17	2945
21	Regulus W.	98 44 21	2438	100 27 1	2429	102 9 55	2419	103 53 2	2410
	Saturn W.	54 56 14	2438	56 38 54	2427	58 21 51	2416	60 5 3	2406
	Spica W.	44 53 29	2417	46 36 39	2407	48 20 4	2397	50 3 43	2388
	α Aquilæ E.	57 32 35	3018	56 2 45	3033	54 33 13	3051	53 4 9	3073
	Fomalhaut E.	86 10 2	2892	84 37 33	2885	83 4 55	2879	81 32 9	2874
	α Pegasi E.	103 27 34	2575	101 48 4	2563	100 8 18	2551	98 28 16	2540
	Mars E.	108 58 52	2685	107 21 52	2674	105 44 37	2663	104 7 8	2652
22	Regulus W.	112 31 42	2371	114 15 59	2364	116 0 25	2357	117 45 1	2351
	Saturn W.	68 44 33	2360	70 29 6	2353	72 13 49	2344	73 58 44	2337
	Spica W.	58 45 11	2346	60 30 4	2338	62 15 8	2331	64 0 23	2324
	Jupiter W.	29 3 9	2309	30 48 55	2302	32 34 52	2295	34 20 59	2287
	α Aquilæ E.	45 46 19	2424	44 20 59	2393	42 56 39	2352	41 33 27	2318
	Fomalhaut E.	73 47 13	2867	72 14 12	2870	70 41 14	2875	69 8 23	2881
	α Pegasi E.	90 4 38	2496	88 23 19	2488	86 41 49	2482	85 0 10	2476
	Mars E.	95 56 20	2606	94 17 33	2599	92 38 36	2591	90 59 28	2583
23	Saturn W.	82 45 42	2308	84 31 30	2303	86 17 25	2298	88 3 27	2294
	Spica W.	72 48 53	2295	74 35 0	2291	76 21 13	2287	78 7 32	2282

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
23	Jupiter W.	36 7 17	2281	37 53 44	2275	39 40 20	2269	41 27 5	2264
	Antares W.	21 9 17	2512	22 50 14	2479	24 31 57	2453	26 14 17	2429
	Fomalhaut E.	67 35 39	2888	66 3 5	2898	64 30 43	2910	62 58 37	2924
	α Pegasi E.	83 18 23	2471	81 36 29	2466	79 54 27	2462	78 12 20	2459
	Mars E.	89 20 10	2577	87 40 43	2570	86 1 7	2564	84 21 22	2558
24	Saturn W.	89 49 35	2291	91 35 48	2287	93 22 6	2284	95 8 29	2282
	Spica W.	79 53 58	2278	81 40 29	2275	83 27 5	2272	85 13 45	2269
	Jupiter W.	50 22 36	2243	52 10 0	2239	53 57 30	2236	55 45 4	2233
	Antares W.	34 52 39	2356	36 37 17	2346	38 22 9	2338	40 7 13	2331
	Fomalhaut E.	55 23 33	3033	53 54 1	3065	52 25 9	3101	50 57 0	3141
	α Pegasi E.	69 40 54	2453	67 58 34	2453	66 16 15	2455	64 33 58	2458
	Mars E.	76 0 54	2536	74 20 31	2533	72 40 3	2530	70 59 31	2527
25	Saturn W.	104 1 6	2274	105 47 43	2274	107 34 21	2274	109 20 59	2274
	Spica W.	94 7 59	2260	95 54 58	2260	97 41 57	2258	99 28 58	2258
	Jupiter W.	64 43 47	2224	66 31 38	2223	68 19 31	2222	70 7 25	2222
	Antares W.	48 54 51	2305	50 40 43	2302	52 26 39	2299	54 12 40	2297
	Fomalhaut E.	43 50 30	3433	42 28 51	3515	41 8 44	3608	39 50 19	3715
	α Pegasi E.	56 4 2	2487	54 22 31	2496	52 41 12	2507	51 0 8	2519
	Mars E.	62 36 12	2520	60 55 27	2520	59 14 42	2520	57 33 57	2521
	SUN E.	128 22 13	2563	126 42 27	2562	125 2 40	2561	123 22 51	2561
26	Spica W.	108 24 5	2259	110 11 5	2260	111 58 3	2262	113 44 59	2262
	Jupiter W.	79 6 59	2223	80 54 52	2224	82 42 43	2225	84 30 33	2227
	Antares W.	63 3 21	2292	64 49 33	2292	66 35 44	2292	68 21 56	2293
	α Pegasi E.	42 40 2	2613	41 1 25	2640	39 23 25	2671	37 46 6	2707
	Mars E.	49 10 36	2530	47 30 4	2533	45 49 37	2536	44 9 14	2540
	SUN E.	115 3 45	2562	113 23 58	2563	111 44 12	2564	110 4 27	2566
27	Jupiter W.	93 29 4	2237	95 16 37	2239	97 4 7	2241	98 51 33	2244
	Antares W.	77 12 31	2299	78 58 32	2302	80 44 29	2304	82 30 23	2306
	Mars E.	35 48 59	2569	34 9 22	2578	32 29 57	2587	30 50 44	2598
	SUN E.	101 46 21	2575	100 6 52	2578	98 27 27	2581	96 48 6	2584
28	Jupiter W.	107 47 39	2260	109 34 38	2264	111 21 31	2266	113 8 20	2270
	Antares W.	91 18 55	2321	93 4 24	2325	94 49 47	2328	96 35 5	2333
	α Aquilæ W.	44 7 40	3199	45 33 50	3151	47 0 58	3106	48 29 1	3066
	SUN E.	88 32 24	2601	86 53 30	2604	85 14 41	2608	83 35 57	2612
29	Antares W.	105 20 5	2354	107 4 46	2359	108 49 10	2364	110 33 45	2369
	α Aquilæ W.	55 59 38	2928	57 31 21	2910	59 3 28	2894	60 35 55	2879
	Fomalhaut W.	32 43 47	4605	33 46 8	4400	34 51 29	4225	35 59 32	4073
	SUN E.	75 23 43	2634	73 45 34	2639	72 7 32	2644	70 29 37	2649
30	α Aquilæ W.	68 22 4	2833	69 55 49	2828	71 29 41	2824	73 3 38	2821
	Fomalhaut W.	42 11 39	3554	43 31 3	3485	44 51 44	3424	46 13 34	3370
	SUN E.	62 21 46	2676	60 44 33	2682	59 7 29	2688	57 30 33	2694
31	α Aquilæ W.	80 53 49	2822	82 27 47	2825	84 1 42	2830	85 35 31	2835
	Fomalhaut W.	53 16 6	3179	54 42 41	3153	56 9 46	3130	57 37 19	3110
	α Pegasi W.	33 12 13	2935	34 43 48	2896	36 16 12	2865	37 49 16	2839
	Mars W.	18 36 49	2828	20 10 15	2825	21 44 10	2809	23 18 26	2798
	SUN E.	49 27 59	2727	47 51 55	2734	46 16 0	2742	44 40 16	2749

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^a .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
23	Jupiter W.	43 13 57	2259	45 0 57	2255	46 48 3	2250	48 35 16	2246
	Antares W.	27 57 10	2410	29 40 30	2394	31 24 13	2380	33 8 17	2367
	Fomalhaut E.	61 26 48	2940	59 55 20	2959	58 24 16	2981	56 53 39	3005
	α Pegasi E.	76 30 9	2456	74 47 53	2454	73 5 35	2453	71 23 15	2452
	Mars E.	82 41 30	2553	81 1 31	2548	79 21 25	2543	77 41 12	2540
24	Saturn W.	96 54 55	2280	98 41 24	2278	100 27 56	2276	102 14 30	2275
	Spica W.	87 0 30	2267	88 47 18	2265	90 34 9	2263	92 21 3	2262
	Jupiter W.	57 32 43	2231	59 20 24	2229	61 8 9	2227	62 55 57	2225
	Antares W.	41 52 28	2324	43 37 52	2319	45 23 24	2313	47 9 4	2309
	Fomalhaut E.	49 29 40	3186	48 3 14	3237	46 37 49	3295	45 13 32	3360
	α Pegasi E.	62 51 46	2462	61 9 39	2466	59 27 38	2472	57 45 45	2479
	Mars E.	69 18 56	2525	67 38 18	2524	65 57 38	2522	64 16 55	2522
25	Saturn W.	111 7 37	2274	112 54 15	2275	114 40 51	2276	116 27 26	2277
	Spica W.	101 15 59	2258	103 3 1	2258	104 50 3	2258	106 37 4	2258
	Jupiter W.	71 55 20	2221	73 43 16	2222	75 31 11	2223	77 19 5	2223
	Antares W.	55 58 44	2295	57 44 51	2294	59 30 59	2292	61 17 10	2292
	Fomalhaut E.	38 33 48	3836	37 19 23	3974	36 7 17	4132	34 57 46	4313
	α Pegasi E.	49 19 22	2533	47 38 55	2550	45 58 51	2568	44 19 12	2589
	Mars E.	55 53 13	2522	54 12 31	2523	52 31 50	2525	50 51 12	2527
	Sun E.	121 43 2	2561	120 3 13	2560	118 23 23	2561	116 43 34	2561
26	Spica W.	115 31 54	2264	117 18 46	2266	119 5 36	2268	120 52 23	2270
	Jupiter W.	86 18 20	2229	88 6 5	2230	89 53 48	2232	91 41 28	2235
	Antares W.	70 8 6	2294	71 54 15	2294	73 40 23	2296	75 26 28	2298
	α Pegasi E.	36 9 36	2748	34 33 59	2796	32 59 26	2851	31 26 4	2915
	Mars E.	42 28 57	2545	40 48 46	2550	39 8 42	2556	37 28 46	2562
	Sun E.	108 24 45	2567	106 45 5	2569	105 5 27	2572	103 25 53	2573
27	Jupiter W.	100 38 55	2247	102 26 13	2250	104 13 26	2253	106 0 35	2256
	Antares W.	84 16 14	2309	86 2 1	2312	87 47 43	2314	89 33 22	2318
	Mars E.	29 11 47	2610	27 33 6	2624	25 54 44	2641	24 16 46	2661
	Sun E.	95 8 49	2587	93 29 36	2590	91 50 27	2593	90 11 23	2597
28	Jupiter W.	114 55 3	2274	116 41 40	2278	118 28 11	2283	120 14 36	2287
	Antares W.	98 20 17	2336	100 5 24	2341	101 50 24	2345	103 35 18	2350
	α Aquilæ W.	49 57 52	3032	51 27 25	3001	52 57 37	2974	54 28 22	2950
	Sun E.	81 57 18	2616	80 18 45	2621	78 40 19	2625	77 1 58	2629
29	Antares W.	112 18 4	2375	114 2 14	2380	115 46 17	2387	117 30 11	2392
	α Aquilæ W.	62 8 41	2867	63 41 43	2856	65 14 59	2847	66 48 26	2839
	Fomalhaut W.	37 10 0	3940	38 22 40	3824	39 37 17	3723	40 53 40	3633
	Sun E.	68 51 48	2654	67 14 7	2659	65 36 32	2665	63 59 5	2671
30	α Aquilæ W.	74 37 39	2819	76 11 42	2819	77 45 45	2819	79 19 48	2821
	Fomalhaut W.	47 36 25	3322	49 0 11	3279	50 24 47	3242	51 50 7	3209
	Sun E.	55 53 45	2700	54 17 5	2707	52 40 34	2714	51 4 12	2720
31	α Aquilæ W.	87 9 14	2840	88 42 50	2846	90 16 18	2854	91 49 36	2862
	Fomalhaut W.	59 5 16	3093	60 33 34	3078	62 2 10	3065	63 31 2	3054
	α Pegasi W.	39 22 53	2817	40 56 59	2799	42 31 29	2784	44 6 18	2770
	Mars W.	24 52 57	2790	26 27 38	2785	28 2 25	2783	29 37 16	2782
	Sun E.	43 4 41	2756	41 29 16	2764	39 54 1	2773	38 18 58	2781

Day of the Month.	AIRY's Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1°04225	1°05565	0°24825	1°49110	101°676
2	1°05058	1°04577	0°24885	1°49146	101°635
3	1°05891	1°03583	0°24945	1°49181	101°584
4	1°06722	1°02581	0°25006	1°49216	101°524
5	1°07550	1°01574	0°25068	1°49251	101°453
6	1°08376	1°00562	0°25131	1°49286	101°372
7	1°09199	0°99544	0°25194	1°49321	101°280
8	1°10019	0°98522	0°25258	1°49356	101°177
9	1°10836	0°97495	0°25323	1°49391	101°064
10	1°11648	0°96465	0°25388	1°49426	100°940
11	1°12456	0°95432	0°25453	1°49460	100°807
12	1°13259	0°94397	0°25519	1°49494	100°664
13	1°14057	0°93362	0°25585	1°49528	100°514
14	1°14850	0°92326	0°25652	1°49561	100°354
15	1°15639	0°91288	0°25720	1°49594	100°185
16	1°16422	0°90251	0°25788	1°49626	100°007
17	1°17199	0°89216	0°25857	1°49658	99°817
18	1°17970	0°88184	0°25926	1°49690	99°616
19	1°18733	0°87156	0°25996	1°49722	99°406
20	1°19493	0°86134	0°26066	1°49754	99°187
21	1°20248	0°85119	0°26137	1°49785	98°958
22	1°20994	0°84110	0°26208	1°49815	98°721
23	1°21734	0°83110	0°26279	1°49845	98°475
24	1°22467	0°82121	0°26350	1°49874	98°221
25	1°23195	0°81142	0°26423	1°49903	97°956
26	1°23916	0°80177	0°26496	1°49931	97°682
27	1°24631	0°79226	0°26569	1°49959	97°400
28	1°25337	0°78293	0°26642	1°49986	97°109
29	1°26038	0°77380	0°26716	1°50012	96°809
30	1°26733	0°76486	0°26790	1°50037	96°501
31	1°27420	0°75614	0°26864	1°50062	96°185
32	1°28100	0°74767	0°26938	1°50086	95°861

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .3845. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	-1.1454	-1.1346	+9.7567	+0.7768	^h 21 ^m 17 ^s 50.16	40	121	.3313
2	1.1388	1.1426	9.7586	0.7786	21 13 54.25	41	122	.3340
3	1.1318	1.1505	9.7605	0.7804	21 9 58.34	42	123	.3368
4	-1.1247	-1.1580	+9.7624	+0.7822	21 6 2.43	43	124	.3395
5	1.1173	1.1653	9.7643	0.7840	21 2 6.53	44	125	.3422
6	1.1097	1.1723	9.7662	0.7858	20 58 10.62	45	126	.3450
7	-1.1018	-1.1791	+9.7681	+0.7876	20 54 14.71	46	127	.3477
8	1.0936	1.1857	9.7700	0.7894	20 50 18.80	47	128	.3504
9	1.0852	1.1920	9.7720	0.7911	20 46 22.89	48	129	.3532
10	-1.0764	-1.1982	+9.7739	+0.7929	20 42 26.98	49	130	.3559
11	1.0674	1.2041	9.7759	0.7946	20 38 31.07	50	131	.3587
12	1.0580	1.2098	9.7779	0.7963	20 34 35.16	51	132	.3614
13	-1.0484	-1.2153	+9.7799	+0.7980	20 30 39.25	52	133	.3641
14	1.0383	1.2206	9.7819	0.7997	20 26 43.34	53	134	.3669
15	1.0280	1.2258	9.7839	0.8013	20 22 47.43	54	135	.3696
16	-1.0172	-1.2307	+9.7859	+0.8029	20 18 51.52	55	136	.3724
17	1.0061	1.2355	9.7880	0.8046	20 14 55.61	56	137	.3751
18	0.9945	1.2401	9.7900	0.8061	20 10 59.70	57	138	.3778
19	-0.9825	-1.2445	+9.7921	+0.8077	20 7 3.79	58	139	.3806
20	0.9701	1.2488	9.7941	0.8092	20 3 7.88	59	140	.3833
21	0.9572	1.2529	9.7962	0.8107	19 59 11.97	60	141	.3860
22	-0.9437	-1.2568	+9.7982	+0.8122	19 55 16.06	61	142	.3888
23	0.9297	1.2606	9.8003	0.8136	19 51 20.15	62	143	.3915
24	0.9151	1.2642	9.8024	0.8150	19 47 24.24	63	144	.3943
25	-0.8999	-1.2677	+9.8045	+0.8164	19 43 28.33	64	145	.3970
26	0.8840	1.2710	9.8066	0.8177	19 39 32.42	65	146	.3997
27	0.8673	1.2742	9.8087	0.8191	19 35 36.51	66	147	.4025
28	-0.8499	-1.2772	+9.8108	+0.8203	19 31 40.60	67	148	.4052
29	0.8317	1.2801	9.8129	0.8216	19 27 44.69	68	149	.4079
30	0.8125	1.2829	9.8150	0.8228	19 23 48.78	69	150	.4107
31	0.7923	1.2855	9.8171	0.8240	19 19 52.87	70	151	.4134
32	-0.7710	-1.2880	+9.8192	+0.8252	19 15 56.96	71	152	.4162

* Add .0011 if Fraction be required for the time 4, see page 320.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subd. from added to Apparent Time.		Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.				
		h m s	s	° ' "	"	m s	m s	s	
Wed.	1	4 38 27.34	10.240	N.22 7 54.4	19.91	1 8.42	2 25.42	0.383	
Thur.	2	4 42 33.31	10.257	22 15 40.7	18.95	1 8.48	2 16.03	0.400	
Frid.	3	4 46 39.68	10.273	22 23 3.8	17.97	1 8.53	2 6.23	0.416	
Sat.	4	4 50 46.42	10.288	22 30 3.4	16.99	1 8.58	1 56.08	0.430	
Sun.	5	4 54 53.49	10.302	22 36 39.4	16.01	1 8.62	1 45.60	0.444	
Mon.	6	4 59 0.89	10.315	22 42 51.8	15.02	1 8.67	1 34.79	0.457	
Tues.	7	5 3 8.58	10.326	22 48 40.2	14.02	1 8.71	1 23.68	0.468	
Wed.	8	5 7 16.54	10.337	22 54 4.7	13.02	1 8.75	1 12.31	0.479	
Thur.	9	5 11 24.76	10.347	22 59 5.0	12.01	1 8.78	1 0.69	0.489	
Frid.	10	5 15 33.19	10.355	23 3 41.1	11.00	1 8.81	0 48.84	0.498	
Sat.	11	5 19 41.81	10.363	23 7 52.9	9.98	1 8.84	0 36.81	0.506	
Sun.	12	5 23 50.63	10.370	23 11 40.2	8.96	1 8.87	0 24.58	0.513	
Mon.	13	5 27 59.60	10.377	23 15 3.0	7.94	1 8.89	0 12.20	0.519	
Tues.	14	5 32 8.71	10.382	23 18 1.2	6.92	1 8.91	0 0.32	0.524	
Wed.	15	5 36 17.93	10.386	23 20 34.8	5.89	1 8.93	0 12.94	0.528	
Thur.	16	5 40 27.23	10.389	23 22 43.7	4.86	1 8.95	0 25.65	0.532	
Frid.	17	5 44 36.62	10.392	23 24 27.9	3.83	1 8.96	0 38.46	0.535	
Sat.	18	5 48 46.06	10.394	23 25 47.4	2.80	1 8.96	0 51.30	0.536	
Sun.	19	5 52 55.53	10.395	23 26 42.0	1.76	1 8.97	1 4.17	0.537	
Mon.	20	5 57 5.01	10.395	23 27 11.9	0.73	1 8.97	1 17.06	0.537	
Tues.	21	6 1 14.49	10.394	23 27 17.0	0.31	1 8.96	1 29.95	0.536	
Wed.	22	6 5 23.94	10.393	23 26 57.2	1.34	1 8.96	1 42.81	0.535	
Thur.	23	6 9 33.33	10.391	23 26 12.7	2.37	1 8.95	1 55.61	0.533	
Frid.	24	6 13 42.67	10.388	23 25 3.4	3.40	1 8.93	2 8.36	0.529	
Sat.	25	6 17 51.92	10.383	23 23 29.3	4.43	1 8.92	2 21.01	0.525	
Sun.	26	6 22 1.06	10.378	23 21 30.5	5.46	1 8.90	2 33.56	0.520	
Mon.	27	6 26 10.07	10.372	23 19 7.0	6.49	1 8.87	2 45.98	0.515	
Tues.	28	6 30 18.93	10.366	23 16 18.9	7.52	1 8.85	2 58.26	0.508	
Wed.	29	6 34 27.63	10.358	23 13 6.3	8.54	1 8.82	3 10.36	0.500	
Thur.	30	6 38 36.11	10.349	23 9 29.2	9.55	1 8.79	3 22.25	0.491	
Frid.	31	6 42 44.37		N.23 5 27.9		1 8.75	3 33.92		

*Mean Time of the Semidiameter passing may be found by subtracting 0°.19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to subt. from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Wed.	1	4 38 27.75	N.22 7 55.2	15 48.0	2 25.40	4 40 53.15
Thur.	2	4 42 33.70	22 15 41.4	15 47.9	2 16.01	4 44 49.71
Frid.	3	4 46 40.04	22 23 4.4	15 47.7	2 6.22	4 48 46.26
Sat.	4	4 50 46.75	22 30 3.9	15 47.6	1 56.07	4 52 42.82
Sun.	5	4 54 53.79	22 36 39.9	15 47.5	1 45.59	4 56 39.38
Mon.	6	4 59 1.16	22 42 52.2	15 47.4	1 34.78	5 0 35.94
Tues.	7	5 3 8.82	22 48 40.6	15 47.3	1 23.67	5 4 32.49
Wed.	8	5 7 16.75	22 54 4.9	15 47.2	1 12.30	5 8 29.05
Thur.	9	5 11 24.93	22 59 5.2	15 47.1	1 0.68	5 12 25.61
Frid.	10	5 15 33.33	23 3 41.2	15 47.0	0 48.83	5 16 22.16
Sat.	11	5 19 41.92	23 7 53.0	15 46.9	0 36.80	5 20 18.72
Sun.	12	5 23 50.70	23 11 40.2	15 46.8	0 24.58	5 24 15.28
Mon.	13	5 27 59.64	23 15 3.0	15 46.7	0 12.20	5 28 11.84
Tues.	14	5 32 8.71	23 18 1.2	15 46.7	0 0.32	5 32 8.39
Wed.	15	5 36 17.89	23 20 34.8	15 46.6	0 12.94	5 36 4.95
Thur.	16	5 40 27.16	23 22 43.7	15 46.5	0 25.65	5 40 1.51
Frid.	17	5 44 36.51	23 24 27.9	15 46.5	0 38.45	5 43 58.06
Sat.	18	5 48 45.91	23 25 47.3	15 46.4	0 51.29	5 47 54.62
Sun.	19	5 52 55.34	23 26 42.0	15 46.3	1 4.16	5 51 51.18
Mon.	20	5 57 4.79	23 27 11.9	15 46.3	1 17.05	5 55 47.74
Tues.	21	6 1 14.23	23 27 17.0	15 46.2	1 29.94	5 59 44.29
Wed.	22	6 5 23.64	23 26 57.3	15 46.2	1 42.79	6 3 40.85
Thur.	23	6 9 33.00	23 26 12.8	15 46.1	1 55.59	6 7 37.41
Frid.	24	6 13 42.30	23 25 3.6	15 46.1	2 8.34	6 11 33.96
Sat.	25	6 17 51.51	23 23 29.5	15 46.1	2 20.99	6 15 30.52
Sun.	26	6 22 0.62	23 21 30.8	15 46.0	2 33.54	6 19 27.08
Mon.	27	6 26 9.59	23 19 7.3	15 46.0	2 45.96	6 23 23.63
Tues.	28	6 30 18.42	23 16 19.3	15 46.0	2 58.23	6 27 20.19
Wed.	29	6 34 27.08	23 13 6.8	15 45.9	3 10.33	6 31 16.75
Thur.	30	6 38 35.53	23 9 29.8	15 45.9	3 22.22	6 35 13.31
Frid.	31	6 42 43.76	N.23 5 28.5	15 45.9	3 33.89	6 39 9.87

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	71° 10' 35".9	S. 0° 26'	0.0062840	15° 49' 3"	15° 45' 6"	57° 58' 0"	57° 44' 4"
2	72° 8' 3".4	0° 39'	0.0063456	15° 41' 6"	15° 37' 5"	57° 29' 9"	57° 14' 7"
3	73° 5' 30".2	0° 52'	0.0064047	15° 33' 2"	15° 28' 8"	56° 58' 9"	56° 42' 7"
4	74° 2' 56".1	0° 64'	0.0064613	15° 24' 3"	15° 19' 8"	56° 26' 3"	56° 9' 8"
5	75° 0' 21".1	0° 75'	0.0065155	15° 15' 3"	15° 11' 0"	55° 53' 4"	55° 37' 5"
6	75° 57' 45".3	0° 83'	0.0065673	15° 6' 9"	15° 2' 9"	55° 22' 2"	55° 7' 8"
7	76° 55' 8".5	0° 90'	0.0066167	14° 59' 2"	14° 56' 0"	54° 54' 5"	54° 42' 7"
8	77° 52' 30".8	0° 94'	0.0066637	14° 53' 2"	14° 50' 9"	54° 32' 5"	54° 24' 0"
9	78° 49' 52".1	0° 96'	0.0067084	14° 49' 1"	14° 48' 0"	54° 17' 6"	54° 13' 3"
10	79° 47' 12".3	0° 95'	0.0067510	14° 47' 5"	14° 47' 6"	54° 11' 4"	54° 12' 0"
11	80° 44' 31".6	0° 92'	0.0067914	14° 48' 4"	14° 50' 0"	54° 15' 0"	54° 20' 6"
12	81° 41' 50".0	0° 86'	0.0068297	14° 52' 2"	14° 55' 1"	54° 28' 8"	54° 39' 5"
13	82° 39' 7".5	0° 79'	0.0068662	14° 58' 7"	15° 3' 0"	54° 52' 7"	55° 8' 3"
14	83° 36' 24".1	0° 68'	0.0069008	15° 7' 8"	15° 13' 2"	55° 26' 0"	55° 45' 8"
15	84° 33' 39".8	0° 57'	0.0069336	15° 19' 1"	15° 25' 3"	56° 7' 3"	56° 30' 1"
16	85° 30' 54".8	0° 45'	0.0069647	15° 31' 8"	15° 38' 5"	56° 54' 0"	57° 18' 5"
17	86° 28' 9".2	0° 31'	0.0069943	15° 45' 2"	15° 51' 8"	57° 43' 1"	58° 7' 3"
18	87° 25' 22".9	0° 19'	0.0070225	15° 58' 2"	16° 4' 2"	58° 30' 6"	58° 52' 5"
19	88° 22' 36".1	S. 0° 07'	0.0070492	16° 9' 6"	16° 14' 4"	59° 12' 5"	59° 30' 1"
20	89° 19' 48".9	N. 0° 04'	0.0070746	16° 18' 5"	16° 21' 7"	59° 45' 0"	59° 56' 8"
21	90° 17' 1".4	0° 12'	0.0070985	16° 24' 1"	16° 25' 5"	60° 5' 4"	60° 10' 6"
22	91° 14' 13".6	0° 17'	0.0071211	16° 26' 0"	16° 25' 7"	60° 12' 5"	60° 11' 2"
23	92° 11' 25".6	0° 18'	0.0071423	16° 24' 4"	16° 22' 5"	60° 6' 9"	59° 59' 8"
24	93° 8' 37".5	0° 15'	0.0071618	16° 20' 0"	16° 16' 9"	59° 50' 4"	59° 39' 0"
25	94° 5' 49".4	0° 09'	0.0071797	16° 13' 3"	16° 9' 4"	59° 25' 9"	59° 11' 5"
26	95° 3' 1".3	N. 0° 01'	0.0071957	16° 5' 2"	16° 0' 8"	58° 56' 1"	58° 40' 1"
27	96° 0' 13".4	S. 0° 11'	0.0072097	15° 56' 3"	15° 51' 7"	58° 23' 6"	58° 6' 9"
28	96° 57' 25".6	0° 24'	0.0072214	15° 47' 2"	15° 42' 6"	57° 50' 1"	57° 33' 5"
29	97° 54' 38".1	0° 35'	0.0072309	15° 38' 1"	15° 33' 7"	57° 16' 9"	57° 0' 7"
30	98° 51' 50".7	0° 48'	0.0072379	15° 29' 3"	15° 25' 1"	56° 44' 8"	56° 29' 2"
31	99° 49' 3".5	S. 0° 60'	0.0072425	15° 20' 9"	15° 16' 8"	56° 13' 9"	55° 59' 0"

MEAN TIME.

		THE MOON'S							
Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
		^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^d	^h ^m		
Wed.	1	34 27 38.4	41 13 11.9	N. 16 5.2	N. 39 31.4	26.5	22 13.2		
Thur.	2	47 55 41.3	54 34 59.8	N. 2 42.3	S. 33 50.3	27.5	23 6.5		
Frid.	3	61 11 1.1	67 43 39.7	S. 1 9 35.7	1 44 6.0	28.5	23 59.9		
Sat.	4	74 12 51.4	80 38 33.6	2 16 54.9	2 47 39.5	0.0	6		
Sun.	5	87 0 45.5	93 19 28.9	3 15 59.7	3 41 38.3	1.0	0 52.5		
Mon.	6	99 34 47.9	105 46 49.8	4 4 21.6	4 23 58.4	2.0	1 43.3		
Tues.	7	111 55 44.8	118 1 46.2	4 40 20.7	4 53 22.8	3.0	2 32.0		
Wed.	8	124 5 10.4	130 6 17.5	5 3 1.0	5 9 14.2	4.0	3 18.3		
Thur.	9	136 5 29.8	142 3 13.1	5 12 2.2	5 11 26.6	5.0	4 2.6		
Frid.	10	147 59 55.4	153 56 7.4	5 7 29.9	5 0 15.8	6.0	4 45.3		
Sat.	11	159 52 21.3	165 49 11.2	4 49 48.4	4 36 13.0	7.0	5 27.3		
Sun.	12	171 47 12.7	177 47 1.6	4 19 35.6	4 0 2.9	8.0	6 9.3		
Mon.	13	183 49 14.5	189 54 27.4	3 37 42.9	3 12 44.7	9.0	6 52.1		
Tues.	14	196 3 15.7	202 16 12.8	2 45 19.2	2 15 38.9	10.0	7 36.7		
Wed.	15	208 33 49.9	214 56 34.8	1 43 59.0	1 10 36.8	11.0	8 23.9		
Thur.	16	221 24 51.3	227 58 57.2	S. 35 53.0	S. 0 11.3	12.0	9 14.3		
Frid.	17	234 39 5.0	241 25 19.1	N. 36 1.3	N. 12 14.2	13.0	10 8.1		
Sat.	18	248 17 36.3	255 15 44.4	1 47 54.4	2 22 26.2	14.0	11 5.1		
Sun.	19	262 19 22.3	269 27 59.9	2 55 12.3	3 25 35.1	15.0	12 4.1		
Mon.	20	276 40 58.8	283 57 33.2	3 52 58.2	4 16 47.2	16.0	13 3.5		
Tues.	21	291 16 51.2	298 37 57.4	4 36 31.5	4 51 46.6	17.0	14 1.9		
Wed.	22	305 59 54.7	313 21 46.4	5 2 13.2	5 7 39.6	18.0	14 58.3		
Thur.	23	320 42 39.0	328 1 43.5	5 8 1.3	5 3 21.0	19.0	15 52.5		
Frid.	24	335 18 17.8	342 31 46.6	4 53 48.1	4 39 38.0	20.0	16 44.8		
Sat.	25	349 41 42.8	356 47 47.0	4 21 11.0	3 58 51.6	21.0	17 35.9		
Sun.	26	3 49 47.0	10 47 37.2	3 33 7.0	3 4 26.8	22.0	18 26.5		
Mon.	27	17 41 17.4	24 30 51.5	2 33 21.7	2 0 23.2	23.0	19 17.4		
Tues.	28	31 16 26.8	37 58 12.8	1 26 2.4	N. 50 50.3	24.0	20 8.9		
Wed.	29	44 36 19.9	51 10 58.8	N. 15 17.2	S. 20 8.1	25.0	21 1.1		
Thur.	30	57 42 20.2	64 10 33.5	S. 54 57.6	1 28 45.4	26.0	21 53.6		
Frid.	31	70 35 47.3	76 58 8.9	S. 2 1 7.1	S. 31 40.6	27.0	22 45.8		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 1.				FRIDAY 3.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	2 7 0.61	N.14 12 34.1	85.95	0	3 57 12.34	N.19 16 28.9	37.49
1	2 9 16.55	14 21 9.8	85.10	1	3 59 31.19	19 20 13.9	36.37
2	2 11 32.58	14 29 40.4	84.24	2	4 1 50.04	19 23 52.1	35.25
3	2 13 48.71	14 38 5.8	83.37	3	4 4 8.88	19 27 23.6	34.12
4	2 16 4.94	14 46 26.0	82.49	4	4 6 27.72	19 30 48.3	33.00
5	2 18 21.26	14 54 41.0	81.60	5	4 8 46.55	19 34 6.3	31.87
6	2 20 37.67	15 2 50.6	80.70	6	4 11 5.37	19 37 17.5	30.74
7	2 22 54.17	15 10 54.8	79.80	7	4 13 24.17	19 40 21.9	29.60
8	2 25 10.77	15 18 53.6	78.89	8	4 15 42.95	19 43 19.5	28.47
9	2 27 27.45	15 26 47.0	77.97	9	4 18 1.70	19 46 10.4	27.34
10	2 29 44.23	15 34 34.8	77.05	10	4 20 20.43	19 48 54.4	26.20
11	2 32 1.10	15 42 17.1	76.11	11	4 22 39.13	19 51 31.6	25.07
12	2 34 18.05	15 49 53.8	75.17	12	4 24 57.79	19 54 2.0	23.93
13	2 36 35.09	15 57 24.8	74.23	13	4 27 16.42	19 56 25.6	22.80
14	2 38 52.22	16 4 50.2	73.27	14	4 29 35.00	19 58 42.4	21.66
15	2 41 9.43	16 12 9.8	72.31	15	4 31 53.54	20 0 52.3	20.52
16	2 43 26.72	16 19 23.7	71.34	16	4 34 12.04	20 2 55.5	19.39
17	2 45 44.09	16 26 31.7	70.37	17	4 36 30.48	20 4 51.8	18.25
18	2 48 1.55	16 33 33.9	69.38	18	4 38 48.87	20 6 41.3	17.12
19	2 50 19.08	16 40 30.2	68.40	19	4 41 7.19	20 8 24.0	15.98
20	2 52 36.69	16 47 20.6	67.40	20	4 43 25.46	20 9 59.9	14.84
21	2 54 54.38	16 54 5.0	66.40	21	4 45 43.66	20 11 28.9	13.71
22	2 57 12.13	17 0 43.4	65.39	22	4 48 1.79	20 12 51.2	12.58
23	2 59 29.97	N.17 7 15.7	64.38	23	4 50 19.85	N.20 14 6.6	11.45
THURSDAY 2.				SATURDAY 4.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	3 1 47.87	N.17 13 42.0	63.36	0	4 52 37.82	N.20 15 15.3	10.32
1	3 4 5.84	17 20 2.2	62.33	1	4 54 55.72	20 16 17.2	9.19
2	3 6 23.87	17 26 16.2	61.30	2	4 57 13.54	20 17 12.3	8.06
3	3 8 41.97	17 32 24.0	60.27	3	4 59 31.27	20 18 0.7	6.93
4	3 11 0.13	17 38 25.6	59.23	4	5 1 48.91	20 18 42.3	5.81
5	3 13 18.35	17 44 21.0	58.18	5	5 4 6.45	20 19 17.1	4.69
6	3 15 36.62	17 50 10.0	57.13	6	5 6 23.90	20 19 45.3	3.57
7	3 17 54.95	17 55 52.8	56.07	7	5 8 41.24	20 20 6.7	2.45
8	3 20 13.33	18 1 29.2	55.01	8	5 10 58.48	20 20 21.4	1.34
9	3 22 31.76	18 6 59.3	53.94	9	5 13 15.62	20 20 29.4	0.23
10	3 24 50.24	18 12 22.9	52.87	10	5 15 32.64	20 20 30.8	0.88
11	3 27 8.77	18 17 40.2	51.80	11	5 17 49.55	20 20 25.5	1.99
12	3 29 27.33	18 22 50.9	50.72	12	5 20 6.34	20 20 13.5	3.10
13	3 31 45.93	18 27 55.2	49.63	13	5 22 23.01	20 19 54.9	4.20
14	3 34 4.57	18 32 53.0	48.55	14	5 24 39.55	20 19 29.7	5.29
15	3 36 23.25	18 37 44.3	47.46	15	5 26 55.97	20 18 58.0	6.39
16	3 38 41.95	18 42 29.0	46.36	16	5 29 12.26	20 18 19.6	7.48
17	3 41 0.68	18 47 7.2	45.26	17	5 31 28.41	20 17 34.8	8.57
18	3 43 19.44	18 51 38.8	44.16	18	5 33 44.42	20 16 43.4	9.65
19	3 45 38.22	18 56 3.8	43.06	19	5 36 0.30	20 15 45.5	10.72
20	3 47 57.02	19 0 22.1	41.95	20	5 38 16.03	20 14 41.2	11.80
21	3 50 15.83	19 4 33.8	40.84	21	5 40 31.61	20 13 30.4	12.87
22	3 52 34.66	19 8 38.9	39.73	22	5 42 47.05	20 12 13.1	13.94
23	3 54 53.49	19 12 37.2	38.61	23	5 45 2.33	20 10 49.5	15.00
24	3 57 12.34	N.19 16 28.9		24	5 47 17.46	N.20 9 19.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
SUNDAY 5.				TUESDAY 7.			
0	5 47 17.46	N.20 9 19.5	16.05	0	7 31 39.19	N.17 3 14.7	59.94
1	5 49 32.43	20 7 43.2	17.11	1	7 33 44.41	16 57 15.1	60.69
2	5 51 47.24	20 6 0.5	18.16	2	7 35 49.41	16 51 10.9	61.43
3	5 54 1.89	20 4 11.6	19.20	3	7 37 54.19	16 45 2.4	62.16
4	5 56 16.37	20 2 16.4	20.24	4	7 39 58.74	16 38 49.4	62.89
5	5 58 30.68	20 0 15.0	21.27	5	7 42 3.08	16 32 32.0	63.62
6	6 0 44.83	19 58 7.4	22.30	6	7 44 7.19	16 26 10.3	64.33
7	6 2 58.80	19 55 53.6	23.32	7	7 46 11.08	16 19 44.4	65.03
8	6 5 12.59	19 53 33.6	24.34	8	7 48 14.75	16 13 14.2	65.73
9	6 7 26.20	19 51 7.6	25.35	9	7 50 18.20	16 6 39.8	66.43
10	6 9 39.63	19 48 35.5	26.36	10	7 52 21.44	16 0 1.2	67.11
11	6 11 52.88	19 45 57.3	27.36	11	7 54 24.45	15 53 18.6	67.79
12	6 14 5.94	19 43 13.1	28.36	12	7 56 27.25	15 46 31.8	68.45
13	6 16 18.82	19 40 23.0	29.35	13	7 58 29.83	15 39 41.1	69.11
14	6 18 31.50	19 37 26.9	30.33	14	8 0 32.20	15 32 46.4	69.77
15	6 20 44.00	19 34 24.9	31.31	15	8 2 34.35	15 25 47.8	70.42
16	6 22 56.30	19 31 17.0	32.28	16	8 4 36.28	15 18 45.2	71.06
17	6 25 8.40	19 28 3.3	33.25	17	8 6 38.00	15 11 38.9	71.70
18	6 27 20.31	19 24 43.8	34.21	18	8 8 39.52	15 4 28.7	72.33
19	6 29 32.02	19 21 18.5	35.17	19	8 10 40.82	14 57 14.7	72.95
20	6 31 43.52	19 17 47.5	36.12	20	8 12 41.91	14 49 57.0	73.56
21	6 33 54.83	19 14 10.8	37.06	21	8 14 42.79	14 42 35.7	74.17
22	6 36 5.93	19 10 28.4	37.99	22	8 16 43.47	14 35 10.6	74.77
23	6 38 16.82	N.19 6 40.5	38.92	23	8 18 43.94	N.14 27 42.0	75.36
MONDAY 6.				WEDNESDAY 8.			
0	6 40 27.51	N.19 2 46.9	39.84	0	8 20 44.21	N.14 20 9.9	75.95
1	6 42 37.99	18 58 47.9	40.76	1	8 22 44.28	14 12 34.2	76.52
2	6 44 48.26	18 54 43.3	41.67	2	8 24 44.14	14 4 55.1	77.10
3	6 46 58.32	18 50 33.3	42.57	3	8 26 43.81	13 57 12.5	77.67
4	6 49 8.16	18 46 17.9	43.47	4	8 28 43.28	13 49 26.5	78.23
5	6 51 17.80	18 41 57.1	44.35	5	8 30 42.55	13 41 37.1	78.78
6	6 53 27.22	18 37 31.0	45.24	6	8 32 41.63	13 33 44.5	79.32
7	6 55 36.42	18 32 59.6	46.11	7	8 34 40.52	13 25 48.5	79.86
8	6 57 45.40	18 28 22.9	46.98	8	8 36 39.21	13 17 49.4	80.39
9	6 59 54.17	18 23 41.0	47.85	9	8 38 37.71	13 9 47.0	80.92
10	7 2 2.72	18 18 53.9	48.70	10	8 40 36.03	13 1 41.5	81.43
11	7 4 11.05	18 14 1.7	49.55	11	8 42 34.16	12 53 32.9	81.94
12	7 6 19.16	18 9 4.3	50.40	12	8 44 32.11	12 45 21.3	82.44
13	7 8 27.05	18 4 1.9	51.23	13	8 46 29.87	12 37 6.6	82.94
14	7 10 34.72	17 58 54.5	52.06	14	8 48 27.46	12 28 49.0	83.43
15	7 12 42.17	17 53 42.2	52.88	15	8 50 24.86	12 20 28.4	83.92
16	7 14 49.40	17 48 24.9	53.69	16	8 52 22.09	12 12 4.9	84.40
17	7 16 56.40	17 43 2.8	54.50	17	8 54 19.15	12 3 38.5	84.87
18	7 19 3.18	17 37 35.8	55.30	18	8 56 16.03	11 55 9.3	85.34
19	7 21 9.74	17 32 4.0	56.09	19	8 58 12.74	11 46 37.3	85.80
20	7 23 16.08	17 26 27.5	56.87	20	9 0 9.29	11 38 2.5	86.25
21	7 25 22.19	17 20 46.2	57.65	21	9 2 5.67	11 29 25.0	86.69
22	7 27 28.08	17 15 0.3	58.42	22	9 4 1.89	11 20 44.9	87.13
23	7 29 33.75	17 9 9.8	59.18	23	9 5 57.95	11 12 2.1	87.57
24	7 31 39.19	N.17 3 14.7		24	9 7 53.85	N.11 3 16.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 9.				SATURDAY 11.			
0	h m s 9 7 53.85	N. 11 3 16.7	87.99	0	h m s 10 38 22.38	N. 3 23 45.1	101.58
1	9 9 49.60	10 54 28.8	88.41	1	10 40 13.85	3 13 35.6	101.73
2	9 11 45.19	10 45 38.3	88.83	2	10 42 5.30	3 3 25.3	101.87
3	9 13 40.63	10 36 45.3	89.23	3	10 43 56.75	2 53 14.1	102.01
4	9 15 35.92	10 27 49.9	89.63	4	10 45 48.19	2 43 2.0	102.14
5	9 17 31.06	10 18 52.1	90.03	5	10 47 39.62	2 32 49.2	102.26
6	9 19 26.06	10 9 51.9	90.42	6	10 49 31.04	2 22 35.7	102.38
7	9 21 20.92	10 0 49.4	90.80	7	10 51 22.48	2 12 21.4	102.50
8	9 23 15.64	9 51 44.6	91.18	8	10 53 13.91	2 2 6.4	102.60
9	9 25 10.23	9 42 37.5	91.56	9	10 55 5.36	1 51 50.8	102.71
10	9 27 4.68	9 33 28.1	91.92	10	10 56 56.81	1 41 34.5	102.81
11	9 28 58.99	9 24 16.6	92.28	11	10 58 48.28	1 31 17.7	102.90
12	9 30 53.18	9 15 3.0	92.63	12	11 0 39.77	1 21 0.3	102.99
13	9 32 47.24	9 5 47.2	92.98	13	11 2 31.28	1 10 42.4	103.07
14	9 34 41.18	8 56 29.3	93.32	14	11 4 22.82	1 0 23.9	103.15
15	9 36 35.00	8 47 9.4	93.66	15	11 6 14.39	0 50 5.0	103.22
16	9 38 28.70	8 37 47.5	93.99	16	11 8 5.98	0 39 45.7	103.28
17	9 40 22.29	8 28 23.6	94.32	17	11 9 57.62	0 29 26.0	103.34
18	9 42 15.76	8 18 57.7	94.63	18	11 11 49.29	0 19 6.0	103.40
19	9 44 9.13	8 9 29.9	94.94	19	11 13 41.01	N. 0 8 45.6	103.45
20	9 46 2.39	8 0 0.3	95.25	20	11 15 32.77	S. 0 1 35.1	103.49
21	9 47 55.54	7 50 28.8	95.55	21	11 17 24.57	0 11 56.1	103.53
22	9 49 48.60	7 40 55.5	95.84	22	11 19 16.43	0 22 17.3	103.56
23	9 51 41.56	N. 7 31 20.4	96.13	23	11 21 8.35	S. 0 32 38.6	103.59
FRIDAY 10.				SUNDAY 12.			
0	9 53 34.42	N. 7 21 43.6	96.42	0	11 23 0.33	S. 0 43 0.2	103.61
1	9 55 27.19	7 12 5.1	96.70	1	11 24 52.37	0 53 21.9	103.63
2	9 57 19.87	7 2 24.9	96.97	2	11 26 44.47	1 3 43.6	103.64
3	9 59 12.47	6 52 43.0	97.24	3	11 28 36.64	1 14 5.4	103.64
4	10 1 4.98	6 42 59.6	97.50	4	11 30 28.89	1 24 27.3	103.64
5	10 2 57.41	6 33 14.6	97.76	5	11 32 21.21	1 34 49.1	103.63
6	10 4 49.76	6 23 28.0	98.01	6	11 34 13.61	1 45 10.9	103.62
7	10 6 42.04	6 13 39.9	98.26	7	11 36 6.09	1 55 32.7	103.60
8	10 8 34.25	6 3 50.4	98.50	8	11 37 58.66	2 5 54.3	103.58
9	10 10 26.39	5 53 59.4	98.73	9	11 39 51.32	2 16 15.8	103.55
10	10 12 18.47	5 44 7.0	98.96	10	11 41 44.08	2 26 37.1	103.51
11	10 14 10.48	5 34 13.3	99.18	11	11 43 36.93	2 36 58.2	103.47
12	10 16 2.43	5 24 18.2	99.39	12	11 45 29.88	2 47 19.0	103.42
13	10 17 54.33	5 14 21.8	99.60	13	11 47 22.94	2 57 39.5	103.37
14	10 19 46.17	5 4 24.2	99.81	14	11 49 16.10	3 7 59.7	103.31
15	10 21 37.96	4 54 25.3	100.01	15	11 51 9.37	3 18 19.6	103.24
16	10 23 29.71	4 44 25.2	100.21	16	11 53 2.76	3 28 39.0	103.17
17	10 25 21.41	4 34 24.0	100.40	17	11 54 56.26	3 38 58.1	103.09
18	10 27 13.07	4 24 21.6	100.58	18	11 56 49.89	3 49 16.6	103.01
19	10 29 4.70	4 14 18.1	100.76	19	11 58 43.64	3 59 34.7	102.92
20	10 30 56.29	4 4 13.5	100.94	20	12 0 37.52	4 9 52.2	102.82
21	10 32 47.85	3 54 7.9	101.11	21	12 2 31.53	4 20 9.1	102.72
22	10 34 39.38	3 44 1.3	101.27	22	12 4 25.67	4 30 25.4	102.61
23	10 36 30.89	3 33 53.6	101.43	23	12 6 19.95	4 40 41.1	102.49
24	10 38 22.38	N. 3 23 45.1		24	12 8 14.37	S. 4 50 56.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 13.				WEDNESDAY 15.			
0	12 ^h 8 ^m 14 ^s 37	S. 4° 50' 56" 0	102° 37'	0	13 ^h 43 ^m 37 ^s 47	S. 12° 35' 23" 2	87° 82'
1	12 10 8 94	5 1 10 2	102° 24'	1	13 45 42 75	12 44 10 1	87° 31'
2	12 12 3 65	5 11 23 6	102° 10'	2	13 47 48 33	12 52 53 9	86° 79'
3	12 13 58 52	5 21 36 3	101° 96'	3	13 49 54 20	13 1 34 7	86° 26'
4	12 15 53 55	5 31 48 0	101° 82'	4	13 52 0 37	13 10 12 2	85° 72'
5	12 17 48 73	5 41 58 9	101° 66'	5	13 54 6 84	13 18 46 5	85° 17'
6	12 19 44 07	5 52 8 9	101° 50'	6	13 56 13 60	13 27 17 5	84° 61'
7	12 21 39 58	6 2 17 9	101° 33'	7	13 58 20 67	13 35 45 2	84° 04'
8	12 23 35 26	6 12 25 8	101° 15'	8	14 0 28 05	13 44 9 4	83° 46'
9	12 25 31 11	6 22 32 7	100° 97'	9	14 2 35 73	13 52 30 2	82° 87'
10	12 27 27 14	6 32 38 6	100° 78'	10	14 4 43 72	14 0 47 4	82° 27'
11	12 29 23 34	6 42 43 3	100° 58'	11	14 6 52 02	14 9 1 0	81° 66'
12	12 31 19 72	6 52 46 8	100° 38'	12	14 9 0 63	14 17 11 0	81° 05'
13	12 33 16 29	7 2 49 1	100° 17'	13	14 11 9 56	14 25 17 3	80° 42'
14	12 35 13 05	7 12 50 1	99° 95'	14	14 13 18 80	14 33 19 8	79° 78'
15	12 37 10 00	7 22 49 8	99° 73'	15	14 15 28 35	14 41 18 4	79° 13'
16	12 39 7 14	7 32 48 2	99° 50'	16	14 17 38 23	14 49 13 2	78° 47'
17	12 41 4 49	7 42 45 2	99° 26'	17	14 19 48 42	14 57 4 0	77° 80'
18	12 43 2 04	7 52 40 7	99° 01'	18	14 21 58 94	15 4 50 7	77° 12'
19	12 44 59 79	8 2 34 8	98° 75'	19	14 24 9 77	15 12 33 4	76° 43'
20	12 46 57 75	8 12 27 3	98° 49'	20	14 26 20 93	15 20 12 0	75° 72'
21	12 48 55 92	8 22 18 3	98° 22'	21	14 28 32 41	15 27 46 3	75° 00'
22	12 50 54 30	8 32 7 6	97° 94'	22	14 30 44 22	15 35 16 3	74° 28'
23	12 52 52 91	S. 8° 41' 55" 3	97° 66'	23	14 32 56 35	S. 15° 42' 42" 1	73° 55'
TUESDAY 14.				THURSDAY 16.			
0	12 54 51 73	S. 8° 51' 41" 3	97° 37'	0	14 35 8 81	S. 15° 50' 3 4	72° 80'
1	12 56 50 78	9 1 25 5	97° 07'	1	14 37 21 59	15 57 20 2	72° 05'
2	12 58 50 05	9 11 7 9	96° 76'	2	14 39 34 71	16 4 32 5	71° 28'
3	13 0 49 56	9 20 48 4	96° 44'	3	14 41 48 15	16 11 40 2	70° 50'
4	13 2 49 30	9 30 27 1	96° 11'	4	14 44 1 92	16 18 43 2	69° 71'
5	13 4 49 27	9 40 3 8	95° 78'	5	14 46 16 02	16 25 41 5	68° 91'
6	13 6 49 49	9 49 38 4	95° 44'	6	14 48 30 44	16 32 35 0	68° 10'
7	13 8 49 95	9 59 11 1	95° 09'	7	14 50 45 20	16 39 23 6	67° 28'
8	13 10 50 65	10 8 41 7	94° 73'	8	14 53 0 29	16 46 7 3	66° 45'
9	13 12 51 60	10 18 10 1	94° 37'	9	14 55 15 71	16 52 45 9	65° 61'
10	13 14 52 80	10 27 36 3	93° 99'	10	14 57 31 45	16 59 19 6	64° 75'
11	13 16 54 25	10 37 0 2	93° 61'	11	14 59 47 53	17 5 48 1	63° 89'
12	13 18 55 96	10 46 21 9	93° 22'	12	15 2 3 93	17 12 11 4	63° 01'
13	13 20 57 93	10 55 41 2	92° 82'	13	15 4 20 67	17 18 29 5	62° 12'
14	13 23 0 16	11 4 58 1	92° 41'	14	15 6 37 73	17 24 42 2	61° 23'
15	13 25 2 66	11 14 12 6	91° 99'	15	15 8 55 12	17 30 49 6	60° 32'
16	13 27 5 42	11 23 24 5	91° 56'	16	15 11 12 84	17 36 51 5	59° 40'
17	13 29 8 46	11 32 33 9	91° 12'	17	15 13 30 89	17 42 47 9	58° 47'
18	13 31 11 76	11 41 40 6	90° 68'	18	15 15 49 26	17 48 38 7	57° 53'
19	13 33 15 35	11 50 44 7	90° 23'	19	15 18 7 96	17 54 24 0	56° 59'
20	13 35 19 21	11 59 46 1	89° 76'	20	15 20 26 98	18 0 3 5	55° 63'
21	13 37 23 35	12 8 44 7	89° 29'	21	15 22 46 32	18 5 37 2	54° 65'
22	13 39 27 77	12 17 40 4	88° 81'	22	15 25 5 98	18 11 5 1	53° 67'
23	13 41 32 48	12 26 33 3	88° 32'	23	15 27 25 97	18 16 27 2	52° 68'
24	13 43 37 47	S. 12° 35' 23" 2		24	15 29 46 27	S. 18° 21' 43" 2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
<i>FRIDAY 17.</i>				<i>SUNDAY 19.</i>			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	15 29 46.27	S. 18 21 43.2	51.68	0	17 27 17.01	S. 20 19 1.2	6.92
1	15 32 6.88	18 26 53.3	50.66	1	17 29 48.77	20 18 19.7	8.29
2	15 34 27.81	18 31 57.2	49.64	2	17 32 20.63	20 17 30.0	9.66
3	15 36 49.05	18 36 55.0	48.60	3	17 34 52.60	20 16 32.0	11.03
4	15 39 10.60	18 41 46.6	47.55	4	17 37 24.67	20 15 25.8	12.41
5	15 41 32.46	18 46 32.0	46.50	5	17 39 56.83	20 14 11.3	13.78
6	15 43 54.63	18 51 10.9	45.43	6	17 42 29.07	20 12 48.6	15.16
7	15 46 17.10	18 55 43.5	44.35	7	17 45 1.40	20 11 17.7	16.54
8	15 48 39.87	19 0 9.7	43.27	8	17 47 33.79	20 9 38.5	17.92
9	15 51 2.94	19 4 29.3	42.17	9	17 50 6.26	20 7 51.0	19.29
10	15 53 26.31	19 8 42.3	41.06	10	17 52 38.79	20 5 55.2	20.67
11	15 55 49.97	19 12 48.6	39.94	11	17 55 11.37	20 3 51.2	22.05
12	15 58 13.93	19 16 48.3	38.79	12	17 57 44.00	20 1 38.9	23.43
13	16 0 38.17	19 20 41.1	37.65	13	18 0 16.68	19 59 18.3	24.80
14	16 3 2.70	19 24 27.0	36.50	14	18 2 49.38	19 56 49.5	26.18
15	16 5 27.51	19 28 6.0	35.35	15	18 5 22.12	19 54 12.4	27.55
16	16 7 52.59	19 31 38.1	34.18	16	18 7 54.89	19 51 27.1	28.93
17	16 10 17.96	19 35 3.2	33.01	17	18 10 27.67	19 48 33.5	30.30
18	16 12 43.59	19 38 21.3	31.83	18	18 13 0.46	19 45 31.7	31.67
19	16 15 9.49	19 41 32.3	30.64	19	18 15 33.26	19 42 21.7	33.03
20	16 17 35.65	19 44 36.1	29.44	20	18 18 6.05	19 39 3.5	34.40
21	16 20 2.08	19 47 32.8	28.24	21	18 20 38.84	19 35 37.2	35.76
22	16 22 28.76	19 50 22.2	27.02	22	18 23 11.62	19 32 2.6	37.12
23	16 24 55.69	S. 19 53 4.3	25.79	23	18 25 44.38	S. 19 28 19.9	38.47
<i>SATURDAY 18.</i>				<i>MONDAY 20.</i>			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	16 27 22.87	S. 19 55 39.0	24.56	0	18 28 17.12	S. 19 24 29.1	39.82
1	16 29 50.29	19 58 6.4	23.32	1	18 30 49.82	19 20 30.2	41.17
2	16 32 17.96	20 0 26.3	22.08	2	18 33 22.49	19 16 23.2	42.51
3	16 34 45.85	20 2 38.8	20.82	3	18 35 55.12	19 12 8.2	43.84
4	16 37 13.98	20 4 43.7	19.56	4	18 38 27.69	19 7 45.1	45.17
5	16 39 42.33	20 6 41.1	18.29	5	18 41 0.22	19 3 14.1	46.50
6	16 42 10.91	20 8 30.8	17.01	6	18 43 32.69	18 58 35.1	47.82
7	16 44 39.69	20 10 12.9	15.73	7	18 46 5.09	18 53 48.2	49.13
8	16 47 8.69	20 11 47.3	14.44	8	18 48 37.43	18 48 53.4	50.44
9	16 49 37.89	20 13 13.9	13.14	9	18 51 9.70	18 43 50.7	51.74
10	16 52 7.30	20 14 32.8	11.84	10	18 53 41.88	18 38 40.3	53.04
11	16 54 36.90	20 15 43.9	10.53	11	18 56 13.98	18 33 22.0	54.33
12	16 57 6.69	20 16 47.0	9.22	12	18 58 45.99	18 27 56.1	55.61
13	16 59 36.66	20 17 42.3	7.89	13	19 1 17.90	18 22 22.5	56.89
14	17 2 6.82	20 18 29.7	6.57	14	19 3 49.71	18 16 41.1	58.15
15	17 4 37.15	20 19 9.1	5.24	15	19 6 21.42	18 10 52.2	59.41
16	17 7 7.65	20 19 40.5	3.90	16	19 8 53.02	18 4 55.8	60.66
17	17 9 38.31	20 20 3.9	2.56	17	19 11 24.50	17 58 51.8	61.91
18	17 12 9.12	20 20 19.2	1.22	18	19 13 55.86	17 52 40.3	63.14
19	17 14 40.09	20 20 26.5	0.13	19	19 16 27.10	17 46 21.5	64.37
20	17 17 11.21	20 20 25.7	1.48	20	19 18 58.21	17 39 55.2	65.59
21	17 19 42.46	20 20 16.8	2.84	21	19 21 29.19	17 33 21.7	66.80
22	17 22 13.85	20 19 59.8	4.20	22	19 24 0.04	17 26 40.9	68.00
23	17 24 45.37	20 19 34.6	5.56	23	19 26 30.74	17 19 52.9	69.19
24	17 27 17.01	S. 20 19 1.2		24	19 29 1.30	S. 17 12 57.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 21.				THURSDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	19 29 1'30	S. 17 12 57.8	70.37	0	21 25 48.73	S. 9 43 35.8	112.73
1	19 31 31.71	17 5 55.6	71.54	1	21 28 9.67	9 32 19.4	113.28
2	19 34 1.97	16 58 46.3	72.70	2	21 30 30.41	9 20 59.8	113.81
3	19 36 32.07	16 51 30.1	73.85	3	21 32 50.95	9 9 36.9	114.33
4	19 39 2.02	16 44 7.0	74.99	4	21 35 11.29	8 58 10.9	114.84
5	19 41 31.80	16 36 37.1	76.12	5	21 37 31.43	8 46 41.9	115.33
6	19 44 1.42	16 29 0.4	77.24	6	21 39 51.37	8 35 9.9	115.81
7	19 46 30.87	16 21 17.0	78.35	7	21 42 11.11	8 23 35.1	116.27
8	19 49 0.14	16 13 26.9	79.44	8	21 44 30.66	8 11 57.5	116.72
9	19 51 29.24	16 5 30.2	80.53	9	21 46 50.02	8 0 17.2	117.16
10	19 53 58.17	15 57 27.1	81.60	10	21 49 9.18	7 48 34.2	117.58
11	19 56 26.91	15 49 17.5	82.66	11	21 51 28.15	7 36 48.8	117.98
12	19 58 55.47	15 41 1.5	83.71	12	21 53 46.93	7 25 0.8	118.38
13	20 1 23.84	15 32 39.3	84.75	13	21 56 5.53	7 13 10.5	118.76
14	20 3 52.03	15 24 10.8	85.77	14	21 58 23.95	7 1 18.0	119.12
15	20 6 20.03	15 15 36.2	86.78	15	22 0 42.18	6 49 23.3	119.47
16	20 8 47.83	15 6 55.5	87.78	16	22 3 0.23	6 37 26.4	119.81
17	20 11 15.44	14 58 8.8	88.77	17	22 5 18.11	6 25 27.6	120.13
18	20 13 42.86	14 49 16.1	89.74	18	22 7 35.81	6 13 26.8	120.44
19	20 16 10.07	14 40 17.7	90.71	19	22 9 53.34	6 1 24.1	120.74
20	20 18 37.09	14 31 13.4	91.66	20	22 12 10.69	5 49 19.7	121.02
21	20 21 3.91	14 22 3.5	92.60	21	22 14 27.88	5 37 13.6	121.29
22	20 23 30.52	14 12 47.9	93.52	22	22 16 44.89	5 25 5.9	121.55
23	20 25 56.93	S. 14 3 26.8	94.43	23	22 19 1.75	S. 5 12 56.6	121.79
WEDNESDAY 22.				FRIDAY 24.			
0	20 28 23.13	S. 13 54 0.2	95.33	0	22 21 18.44	S. 5 0 45.9	122.01
1	20 30 49.12	13 44 28.2	96.21	1	22 23 34.98	4 48 33.8	122.22
2	20 33 14.91	13 34 51.0	97.08	2	22 25 51.35	4 36 20.5	122.42
3	20 35 40.48	13 25 8.5	97.94	3	22 28 7.58	4 24 6.0	122.61
4	20 38 5.85	13 15 20.8	98.78	4	22 30 23.65	4 11 50.3	122.78
5	20 40 31.00	13 5 28.1	99.61	5	22 32 39.57	3 59 33.6	122.94
6	20 42 55.95	12 55 30.4	100.43	6	22 34 55.35	3 47 15.9	123.09
7	20 45 20.68	12 45 27.9	101.23	7	22 37 10.98	3 34 57.4	123.23
8	20 47 45.20	12 35 20.5	102.02	8	22 39 26.48	3 22 38.0	123.35
9	20 50 9.51	12 25 8.3	102.80	9	22 41 41.83	3 10 17.9	123.46
10	20 52 33.61	12 14 51.5	103.56	10	22 43 57.05	2 57 57.1	123.55
11	20 54 57.49	12 4 30.2	104.30	11	22 46 12.14	2 45 35.8	123.63
12	20 57 21.16	11 54 4.4	105.04	12	22 48 27.09	2 33 14.0	123.70
13	20 59 44.62	11 43 34.2	105.76	13	22 50 41.92	2 20 51.8	123.76
14	21 1 7.87	11 32 59.6	106.46	14	22 52 56.63	2 8 29.2	123.80
15	21 4 30.90	11 22 20.9	107.15	15	22 55 11.21	1 56 6.4	123.83
16	21 6 53.72	11 11 38.0	107.83	16	22 57 25.68	1 43 43.4	123.85
17	21 9 16.33	11 0 51.0	108.49	17	22 59 40.03	1 31 20.3	123.86
18	21 11 38.73	10 50 0.1	109.14	18	23 1 54.27	1 18 57.2	123.85
19	21 14 0.92	10 39 5.3	109.77	19	23 4 8.40	1 6 34.0	123.83
20	21 16 22.90	10 28 6.7	110.39	20	23 6 22.43	0 54 11.0	123.80
21	21 18 44.67	10 17 4.3	111.00	21	23 8 36.35	0 41 48.2	123.76
22	21 21 6.23	10 5 58.3	111.59	22	23 10 50.17	0 29 25.7	123.71
23	21 23 27.58	9 54 48.8	112.17	23	23 13 3.89	0 17 3.4	123.64
24	21 25 48.73	S. 9 43 35.8		24	23 15 17.51	S. 0 4 41.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
SATURDAY 25.				MONDAY 27.			
0	h m s	S. ° ' "	"	0	h m s	N. ° ' "	"
1	23 15 17.51	S. 0 4 41.6	123.56	1	1 16.39	N. 9 18 25.6	106.67
2	23 17 31.04	N. 0 7 39.7	123.47	2	1 3 28.80	9 29 5.6	106.07
3	23 19 44.49	0 20 0.5	123.36	3	1 5 41.26	9 39 42.0	105.46
4	23 21 57.85	0 32 20.7	123.24	4	1 7 53.74	9 50 14.8	104.85
5	23 24 11.12	0 44 40.2	123.12	5	1 10 6.27	10 0 43.9	104.23
6	23 26 24.31	0 56 58.9	122.98	6	1 12 18.84	10 11 9.2	103.59
7	23 28 37.43	1 9 16.7	122.82	7	1 14 31.46	10 21 30.7	102.94
8	23 30 50.48	1 21 33.7	122.66	8	1 16 44.12	10 31 48.4	102.29
9	23 33 3.45	1 33 49.6	122.48	9	1 18 56.82	10 42 2.1	101.63
10	23 35 16.35	1 46 4.5	122.30	10	1 21 9.57	10 52 11.9	100.96
11	23 37 29.19	1 58 18.3	122.10	11	1 23 22.38	11 2 17.7	100.28
12	23 39 41.97	2 10 30.9	121.89	12	1 25 35.23	11 12 19.3	99.60
13	23 41 54.68	2 22 42.3	121.67	13	1 27 48.13	11 22 16.9	98.90
14	23 44 7.34	2 34 52.3	121.44	14	1 30 1.09	11 32 10.3	98.20
15	23 46 19.95	2 47 1.0	121.20	15	1 32 14.11	11 41 59.5	97.48
16	23 48 32.51	2 59 8.1	120.94	16	1 34 27.17	11 51 44.4	96.76
17	23 50 45.02	3 11 13.8	120.67	17	1 36 40.30	12 1 25.0	96.04
18	23 52 57.48	3 23 17.8	120.40	18	1 38 53.48	12 11 1.2	95.30
19	23 55 9.91	3 35 20.2	120.11	19	1 41 6.73	12 20 33.0	94.55
20	23 57 22.29	3 47 20.8	119.81	20	1 43 20.03	12 30 0.3	93.80
21	23 59 34.64	3 59 19.7	119.50	21	1 45 33.39	12 39 23.1	93.04
22	0 1 46.96	4 11 16.7	119.18	22	1 47 46.82	12 48 41.4	92.27
23	0 3 59.24	4 23 11.8	118.85	23	1 50 0.31	12 57 55.0	91.50
24	0 6 11.49	N. 4 35 4.9	118.50	24	1 52 13.87	N. 13 7 4.0	90.71
SUNDAY 26.				TUESDAY 28.			
0	0 8 23.72	N. 4 46 55.9	118.15	0	1 54 27.49	N. 13 16 8.2	89.92
1	0 10 35.93	4 58 44.8	117.79	1	1 56 41.18	13 25 7.7	89.12
2	0 12 48.12	5 10 31.6	117.42	2	1 58 54.93	13 34 2.4	88.31
3	0 15 0.29	5 22 16.1	117.03	3	2 1 8.75	13 42 52.3	87.50
4	0 17 12.44	5 33 58.3	116.64	4	2 3 22.63	13 51 37.3	86.68
5	0 19 24.59	5 45 38.1	116.23	5	2 5 36.59	14 0 17.3	85.85
6	0 21 36.73	5 57 15.5	115.82	6	2 7 50.61	14 8 52.4	85.01
7	0 23 48.86	6 8 50.5	115.40	7	2 10 4.70	14 17 22.5	84.17
8	0 26 0.98	6 20 22.8	114.96	8	2 12 18.86	14 25 47.5	83.32
9	0 28 13.10	6 31 52.6	114.52	9	2 14 33.09	14 34 7.4	82.46
10	0 30 25.23	6 43 19.7	114.06	10	2 16 47.39	14 42 22.2	81.60
11	0 32 37.36	6 54 44.1	113.60	11	2 19 1.75	14 50 31.8	80.73
12	0 34 49.49	7 6 5.7	113.12	12	2 21 16.19	14 58 36.1	79.85
13	0 37 1.63	7 17 24.4	112.64	13	2 23 30.69	15 6 35.2	78.97
14	0 39 13.79	7 28 40.3	112.14	14	2 25 45.27	15 14 29.0	78.07
15	0 41 25.96	7 39 53.1	111.64	15	2 27 59.91	15 22 17.4	77.17
16	0 43 38.14	7 51 2.9	111.12	16	2 30 14.62	15 30 0.5	76.27
17	0 45 50.33	8 2 9.7	110.60	17	2 32 29.39	15 37 38.1	75.36
18	0 48 2.55	8 13 13.2	110.07	18	2 34 44.24	15 45 10.2	74.44
19	0 50 14.79	8 24 13.6	109.53	19	2 36 59.15	15 52 36.9	73.52
20	0 52 27.06	8 35 10.8	108.97	20	2 39 14.13	15 59 58.0	72.59
21	0 54 39.35	8 46 4.6	108.41	21	2 41 29.17	16 7 13.6	71.65
22	0 56 51.67	8 56 55.1	107.84	22	2 43 44.28	16 14 23.5	70.71
23	0 59 4.02	9 7 42.1	107.26	23	2 45 59.46	16 21 27.8	69.77
24	1 1 16.39	N. 9 18 25.6		24	2 48 14.70	N. 16 28 26.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 29.				THURSDAY 30.			
0	2 48 14.70	N.16 28 26.3	68.82	0	3 42 36.73	N.18 46 7.6	44.49
1	2 50 30.01	16 35 19.2	67.86	1	3 44 53.16	18 50 34.5	43.43
2	2 52 45.37	16 42 6.3	66.89	2	3 47 9.61	18 54 55.1	42.36
3	2 55 0.80	16 48 47.7	65.92	3	3 49 26.08	18 59 9.3	41.29
4	2 57 16.29	16 55 23.2	64.95	4	3 51 42.57	19 3 17.1	40.22
5	2 59 31.84	17 1 52.9	63.97	5	3 53 59.08	19 7 18.4	39.15
6	3 1 47.44	17 8 16.7	62.98	6	3 56 15.60	19 11 13.3	38.08
7	3 4 3.11	17 14 34.5	61.99	7	3 58 32.14	19 15 1.8	37.00
8	3 6 18.83	17 20 46.5	60.99	8	4 0 48.69	19 18 43.7	35.92
9	3 8 34.60	17 26 52.4	59.99	9	4 3 5.24	19 22 19.2	34.84
10	3 10 50.43	17 32 52.4	58.98	10	4 5 21.80	19 25 48.3	33.75
11	3 13 6.31	17 38 46.4	57.98	11	4 7 38.36	19 29 10.8	32.67
12	3 15 22.24	17 44 34.3	56.97	12	4 9 54.91	19 32 26.7	31.58
13	3 17 38.22	17 50 16.1	55.95	13	4 12 11.47	19 35 36.2	30.49
14	3 19 54.25	17 55 51.9	54.93	14	4 14 28.01	19 38 39.1	29.40
15	3 22 10.32	18 1 21.5	53.90	15	4 16 44.55	19 41 35.5	28.30
16	3 24 26.44	18 6 44.9	52.87	16	4 19 1.08	19 44 25.3	27.21
17	3 26 42.60	18 12 2.1	51.84	17	4 21 17.60	19 47 8.5	26.11
18	3 28 58.79	18 17 13.1	50.80	18	4 23 34.09	19 49 45.2	25.02
19	3 31 15.03	18 22 17.9	49.76	19	4 25 50.57	19 52 15.3	23.92
20	3 33 31.31	18 27 16.5	48.71	20	4 28 7.02	19 54 38.9	22.82
21	3 35 47.61	18 32 8.7	47.66	21	4 30 23.45	19 56 55.8	21.73
22	3 38 3.95	18 36 54.7	46.61	22	4 32 39.85	19 59 6.2	20.63
23	3 40 20.33	18 41 34.3	45.55	23	4 34 56.22	20 1 10.0	19.53
24	3 42 36.73	N.18 46 7.6		24	4 37 12.55	N.20 3 7.2	

PHASES OF THE MOON.

	d	h	m
● New Moon - - - - -	3	23	40.1
☾ First Quarter - - - - -	11	23	48.2
○ Full Moon - - - - -	19	10	54.1
☾ Last Quarter - - - - -	26	2	14.8

	d	h
☾ Apogee - - - - -	10	3
☾ Perigee - - - - -	22	1

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	α Aquilæ W.	93 22 44	1870	94 55 41	1880	96 28 26	1891	98 0 57	1902
	Fomalhaut W.	65 0 8	3045	66 29 25	3038	67 58 50	3032	69 28 23	3028
	α Pegasi W.	45 41 25	2760	47 16 45	2752	48 52 16	2745	50 27 56	2741
	Mars W.	31 12 8	2782	32 47 0	2783	34 21 50	2785	35 56 37	2789
	SUN E.	36 44 5	2790	35 9 24	2798	33 34 54	2808	32 0 36	2818
6	SUN W.	23 56 46	3225	25 22 26	3234	26 47 55	3243	28 13 13	3253
	Regulus E.	48 32 25	2896	47 0 1	2908	45 27 52	2921	43 56 0	2933
	Saturn E.	91 57 20	2876	90 24 30	2886	88 51 53	2896	87 19 29	2906
	Spica E.	102 11 17	2858	100 38 4	2869	99 5 5	2879	97 32 19	2889
7	SUN W.	35 16 52	3301	36 41 2	3311	38 5 1	3319	39 28 51	3329
	Regulus E.	36 20 40	2998	34 50 25	3013	33 20 29	3027	31 50 50	3043
	Saturn E.	79 40 44	2956	78 9 36	2965	76 38 39	2975	75 7 55	2984
	Spica E.	89 51 38	2938	88 20 7	2946	86 48 47	2955	85 17 38	2964
	Jupiter E.	117 48 21	2902	116 16 4	2912	114 44 0	2920	113 12 6	2929
8	SUN W.	46 25 26	3370	47 48 17	3377	49 11 0	3384	50 33 35	3391
	Pollux W.	17 17 56	4145	18 27 14	3985	19 39 8	3858	20 53 10	3756
	Regulus E.	24 27 37	3134	23 0 9	3158	21 33 10	3187	20 6 45	3219
	Saturn E.	67 36 57	3026	66 7 16	3033	64 37 44	3041	63 8 22	3048
	Spica E.	77 44 30	3003	76 14 21	3010	74 44 21	3017	73 14 30	3023
	Jupiter E.	105 35 18	2968	104 4 25	2976	102 33 42	2982	101 3 6	2989
9	SUN W.	57 24 43	3418	58 46 39	3423	60 8 29	3427	61 30 15	3431
	Pollux W.	27 24 28	3464	28 45 32	3431	30 7 13	3403	31 20 26	3378
	Saturn E.	55 43 35	3079	54 15 0	3085	52 46 32	3090	51 18 10	3095
	Spica E.	65 47 1	3050	64 17 50	3054	62 48 44	3058	61 19 43	3061
	Jupiter E.	93 32 1	3015	92 2 7	3020	90 32 19	3023	89 2 35	3026
	Antares E.	111 10 42	3080	109 42 8	3083	108 13 38	3087	106 45 12	3090
10	SUN W.	68 18 13	3442	69 39 42	3443	71 1 10	3443	72 22 38	3443
	Pollux W.	38 26 32	3293	39 50 52	3280	41 15 27	3269	42 40 15	3258
	Saturn E.	43 57 45	3115	42 29 54	3119	41 2 8	3123	39 34 26	3125
	Spica E.	53 55 29	3072	52 26 45	3073	50 58 2	3073	49 29 20	3073
	Jupiter E.	81 34 50	3038	80 5 24	3039	78 35 59	3039	77 6 34	3039
11	Antares E.	99 23 49	3099	97 55 38	3099	96 27 27	3100	94 59 17	3099
	SUN W.	79 10 10	3434	80 31 48	3432	81 53 28	3428	83 15 13	3423
	Pollux W.	49 47 14	3210	51 13 11	3202	52 39 18	3193	54 5 36	3184
	Saturn E.	32 16 53	3143	30 49 35	3148	29 22 23	3152	27 55 16	3158
	Spica E.	42 5 33	3065	40 36 41	3062	39 7 45	3059	37 38 45	3055
12	Jupiter E.	69 39 21	3032	68 9 48	3029	66 40 11	3026	65 10 31	3022
	Antares E.	87 38 11	3092	86 9 51	3089	84 41 28	3086	83 13 1	3082
	SUN W.	90 5 22	3395	91 27 44	3387	92 50 15	3380	94 12 54	3372
	Pollux W.	61 19 45	3138	62 47 9	3128	64 14 44	3119	65 42 31	3109
	Regulus W.	24 17 46	3147	25 44 59	3127	27 12 36	3110	28 40 33	3094
13	Spica E.	30 12 21	3029	28 42 44	3022	27 12 58	3014	25 43 3	3006
	Jupiter E.	57 40 46	2996	56 10 29	2989	54 40 3	2983	53 9 29	2975
	Antares E.	75 49 25	3056	74 20 22	3050	72 51 11	3043	71 21 52	3036
	SUN W.	101 8 45	3323	102 32 30	3312	103 56 28	3300	105 20 39	3288
	Regulus W.	36 5 6	3019	37 34 55	3005	39 5 1	2991	40 35 25	2977

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
1	α Aquilæ W.	99 33 13	2914	101 5 14	2927	102 36 59	2941	104 8 26	2956
	Fomalhaut W.	70 58 1	3025	72 27 43	3023	73 57 27	3022	75 27 12	3023
	α Pegasi W.	52 3 42	2738	53 39 32	2735	55 15 25	2734	56 51 19	2734
	Mars W.	37 31 19	2793	39 5 56	2798	40 40 26	2803	42 14 50	2810
	Sun E.	30 26 31	2828	28 52 39	2837	27 18 59	2848	25 45 34	2859
6	Sun W.	29 38 19	3263	31 3 14	3272	32 27 58	3282	33 52 30	3291
	Regulus E.	42 44 23	2946	40 53 3	2959	39 21 58	2973	37 51 11	2985
	Saturn E.	85 47 18	2917	84 15 21	2927	82 43 36	2937	81 12 4	2946
	Spica E.	95 59 46	2898	94 27 25	2909	92 55 17	2919	91 23 22	2928
7	Sun W.	40 52 29	3337	42 15 58	3346	43 39 16	3353	45 2 26	3362
	Regulus E.	30 21 30	3058	28 52 29	3075	27 23 49	3093	25 55 31	3113
	Saturn E.	73 37 22	2992	72 6 59	3001	70 36 48	3010	69 6 47	3018
	Spica E.	83 46 40	2972	82 15 52	2981	80 45 15	2989	79 14 48	2996
	Jupiter E.	111 40 24	2937	110 8 52	2946	108 37 31	2954	107 6 20	2961
8	Sun W.	51 56 2	3397	53 18 22	3402	54 40 36	3409	56 2 42	3414
	Pollux W.	22 8 58	3674	23 26 13	3607	24 44 40	3551	26 4 8	3504
	Regulus E.	18 40 58	3257	17 15 56	3305	15 51 51	3365	14 28 54	3442
	Saturn E.	61 39 8	3055	60 10 3	3061	58 41 6	3068	57 12 17	3074
	Spica E.	71 44 46	3029	70 15 9	3035	68 45 40	3040	67 16 17	3046
	Jupiter E.	99 32 39	2994	98 2 19	3001	96 32 7	3006	95 2 1	3010
9	Sun W.	62 51 56	3434	64 13 34	3436	65 35 10	3439	66 56 42	3440
	Pollux W.	32 52 7	3357	34 15 13	3338	35 38 40	3321	37 2 27	3306
	Saturn E.	49 49 55	3099	48 21 44	3104	46 53 40	3108	45 25 40	3112
	Spica E.	59 50 46	3064	58 21 53	3067	56 53 3	3069	55 24 15	3070
	Jupiter E.	87 32 55	3030	86 3 20	3032	84 33 47	3035	83 4 17	3037
	Antares E.	105 16 50	3092	103 48 31	3095	102 20 15	3096	100 52 1	3098
10	Sun W.	73 44 6	3443	75 5 34	3441	76 27 4	3439	77 48 36	3437
	Pollux W.	44 5 16	3248	45 30 28	3228	46 55 52	3228	48 21 28	3219
	Saturn E.	38 6 47	3129	36 39 13	3132	35 11 42	3136	33 44 16	3139
	Spica E.	48 0 37	3072	46 31 53	3071	45 3 8	3070	43 34 22	3068
	Jupiter E.	75 37 10	3039	74 7 45	3038	72 38 19	3036	71 8 51	3034
	Antares E.	93 31 6	3099	92 2 55	3098	90 34 43	3096	89 6 28	3094
11	Sun W.	84 37 3	3419	85 58 58	3414	87 20 59	3408	88 43 7	3401
	Pollux W.	55 32 4	3175	56 58 43	3166	58 25 33	3157	59 52 33	3148
	Saturn E.	26 28 16	3165	25 1 25	3174	23 34 45	3185	22 8 18	3198
	Spica E.	36 9 40	3051	34 40 30	3046	33 11 14	3040	31 41 51	3035
	Jupiter E.	63 40 46	3018	62 10 55	3013	60 40 59	3008	59 10 56	3002
	Antares E.	81 44 29	3078	80 15 52	3073	78 47 9	3068	77 18 20	3063
12	Sun W.	95 35 43	3363	96 58 42	3353	98 21 52	3344	99 45 13	3334
	Pollux W.	67 10 30	3098	68 38 42	3087	70 7 7	3077	71 35 45	3065
	Regulus W.	30 8 50	3078	31 37 27	3063	33 6 22	3048	34 35 35	3034
	Spica E.	24 12 58	2999	22 42 44	2990	21 12 19	2981	19 41 42	2972
	Jupiter E.	51 38 45	2967	50 7 51	2959	48 36 47	2950	47 4 52	2941
	Antares E.	69 52 24	3029	68 22 47	3021	66 53 0	3012	65 23 2	3004
13	Sun W.	106 45 4	3276	108 9 43	3263	109 34 38	3251	110 59 47	3237
	Regulus W.	42 6 7	2962	43 37 7	2948	45 8 25	2934	46 40 1	2919

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
13	Jupiter E.	45 34 5	2931	44 2 26	2921	42 30 34	2910	40 58 28	2900
	Antares E.	63 52 54	2994	62 22 34	2985	60 52 3	2975	59 21 19	2965
14	SUN W.	112 25 13	3223	113 50 55	3209	115 16 54	3194	116 43 11	3179
	Regulus W.	48 11 56	2904	49 44 10	2889	51 16 43	2874	52 49 35	2859
	Jupiter E.	33 14 24	2839	31 40 47	2827	30 6 55	2814	28 32 45	2800
	Antares E.	51 44 26	2911	50 12 21	2900	48 40 2	2889	47 7 29	2877
	α Aquilæ E.	103 23 19	3294	101 59 1	3277	100 34 22	3259	99 9 23	3241
15	SUN W.	123 59 7	3101	125 27 15	3084	126 55 44	3068	128 24 32	3052
	Regulus W.	60 38 58	2779	62 13 53	2763	63 49 9	2747	65 24 47	2730
	Saturn W.	17 46 7	2975	19 16 51	2927	20 48 36	2885	22 21 14	2848
	Antares E.	39 21 2	2821	37 47 2	2810	36 12 47	2801	34 38 20	2792
	α Aquilæ E.	91 59 19	3157	90 32 19	3143	89 5 1	3127	87 37 24	3111
16	Regulus W.	73 28 29	2647	75 6 20	2629	76 44 35	2613	78 23 12	2596
	Saturn W.	30 14 53	2707	31 51 24	2684	33 28 26	2661	35 5 59	2639
	Spica W.	19 30 22	2624	21 8 44	2608	22 47 28	2592	24 26 34	2575
	Antares E.	26 43 35	2765	25 8 22	2767	23 33 11	2774	21 58 9	2786
	α Aquilæ E.	80 14 57	3045	78 45 40	3033	77 16 8	3022	75 46 23	3013
	Fomalhaut E.	108 52 44	3150	107 25 35	3124	105 57 55	3100	104 29 45	3075
17	Regulus W.	86 42 3	2514	88 22 57	2497	90 4 14	2481	91 45 54	2466
	Saturn W.	43 20 49	2539	45 1 8	2520	46 41 53	2502	48 23 4	2484
	Spica W.	32 47 48	2493	34 29 11	2477	36 10 56	2461	37 53 4	2445
	α Aquilæ E.	68 14 52	2977	66 44 10	2973	65 13 23	2971	63 42 34	2970
	Fomalhaut E.	97 1 50	2968	95 30 57	2949	93 59 40	2931	92 28 0	2914
18	Regulus W.	100 19 38	2391	102 3 26	2376	103 47 35	2363	105 32 3	2350
	Saturn W.	56 54 59	2402	58 38 31	2386	60 22 26	2371	62 6 42	2357
	Spica W.	46 29 16	2370	48 13 34	2355	49 58 14	2341	51 43 13	2328
	Jupiter W.	19 32 36	2351	21 17 21	2336	23 2 28	2322	24 47 56	2308
	α Aquilæ E.	56 9 6	2998	54 38 51	3012	53 8 53	3029	51 39 17	3050
	Fomalhaut E.	84 44 42	2843	83 11 10	2833	81 37 25	2823	80 3 27	2814
	α Pegasi E.	101 55 18	2528	100 14 44	2512	98 33 47	2496	96 52 28	2482
19	Saturn W.	70 53 4	2291	72 39 17	2279	74 25 47	2268	76 12 33	2257
	Spica W.	60 32 59	2265	62 19 50	2254	64 6 58	2243	65 54 22	2233
	Jupiter W.	33 40 9	2245	35 27 30	2233	37 15 8	2222	39 3 2	2212
	Antares W.	16 15 7	2592	17 54 13	2523	19 34 54	2468	21 16 52	2425
	Fomalhaut E.	72 11 25	2792	70 36 47	2793	69 2 10	2795	67 27 35	2799
	α Pegasi E.	88 21 3	2417	86 37 53	2407	84 54 28	2397	83 10 49	2388
	Mars E.	114 12 35	2506	112 31 30	2493	110 50 7	2482	109 8 28	2470
20	Saturn W.	85 10 7	2212	86 58 16	2205	88 46 36	2198	90 35 7	2192
	Spica W.	74 54 59	2188	76 43 45	2181	78 32 42	2174	80 21 49	2167
	Jupiter W.	48 6 11	2168	49 55 27	2161	51 44 54	2153	53 34 32	2147
	Antares W.	29 59 18	2290	31 45 32	2272	33 32 13	2257	35 19 15	2243
	Fomalhaut E.	59 37 2	2855	58 3 46	2874	56 30 54	2897	54 58 32	2924
	α Pegasi E.	74 29 38	2355	72 44 58	2350	71 0 11	2347	69 15 20	2346
	Mars E.	100 36 25	2421	98 53 21	2413	97 10 5	2406	95 26 39	2399
21	Saturn W.	99 39 43	2169	101 28 57	2166	103 18 15	2165	105 7 35	2163
	Spica W.	89 29 31	2144	91 19 23	2141	93 9 19	2139	94 59 19	2137

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
13	Jupiter	E.	39 26 9	2838	37 53 35	2877	36 20 47	2865	34 47 43	2853
	Antares	E.	57 50 23	2955	56 19 14	2945	54 47 52	2934	53 16 16	2923
14	Sun	W.	118 9 45	3164	119 36 37	3148	121 3 48	3133	122 31 18	3117
	Regulus	W.	54 22 47	2843	55 56 19	2827	57 30 12	2811	59 4 25	2796
	Jupiter	E.	26 58 17	2786	25 23 31	2773	23 48 28	2758	22 13 5	2744
	Antares	E.	45 34 41	2866	44 1 38	2855	42 28 21	2843	40 54 49	2832
	α Aquilæ	E.	97 44 2	3224	96 18 21	3207	94 52 20	3191	93 26 0	3173
15	Sun	W.	129 53 41	3035	131 23 11	3018	132 53 1	3001	134 23 13	2985
	Regulus	W.	67 0 47	2714	68 37 9	2697	70 13 53	2680	71 51 0	2663
	Saturn	W.	23 54 39	2816	25 28 46	2786	27 3 33	2758	28 38 56	2732
	Antares	E.	33 3 42	2783	31 28 52	2776	29 53 53	2770	28 18 46	2767
	α Aquilæ	E.	86 9 28	3097	84 41 15	3084	83 12 46	3070	81 43 59	3057
16	Regulus	W.	80 2 12	2579	81 41 36	2563	83 21 22	2546	85 1 31	2530
	Saturn	W.	36 44 1	2618	38 22 31	2597	40 1 30	2577	41 40 56	2558
	Spica	W.	26 6 3	2559	27 45 55	2542	29 26 10	2526	31 6 47	2509
	Antares	E.	20 23 22	2804	18 48 59	2833	17 15 14	2877	15 42 26	2944
	α Aquilæ	E.	74 16 26	3003	72 46 17	2995	71 15 58	2987	69 45 29	2981
	Fomalhaut	E.	103 1 5	3052	101 31 57	3030	100 2 21	3008	98 32 18	2988
17	Regulus	W.	93 27 55	2450	95 10 19	2435	96 53 4	2419	98 36 11	2405
	Saturn	W.	50 4 39	2467	51 46 38	2450	53 29 2	2433	55 11 49	2417
	Spica	W.	39 35 35	2429	41 18 28	2414	43 1 42	2399	44 45 18	2384
	α Aquilæ	E.	62 11 44	2971	60 40 55	2975	59 10 11	2980	57 39 33	2988
	Fomalhaut	E.	90 55 59	2898	89 23 38	2883	87 50 57	2869	86 17 58	2855
18	Regulus	W.	107 16 50	2337	109 1 56	2324	110 47 20	2313	112 33 1	2300
	Saturn	W.	63 51 19	2343	65 36 16	2329	67 21 33	2316	69 7 10	2304
	Spica	W.	53 28 32	2314	55 14 11	2301	57 0 9	2289	58 46 25	2277
	Jupiter	W.	26 33 44	2294	28 19 52	2281	30 6 19	2268	31 53 5	2256
	α Aquilæ	E.	50 10 6	3075	48 41 26	3105	47 13 22	3140	45 46 1	3180
	Fomalhaut	E.	78 29 18	2807	76 54 59	2801	75 20 33	2797	73 46 1	2794
	α Pegasi	E.	95 10 49	2467	93 28 50	2454	91 46 32	2441	90 3 56	2429
19	Saturn	W.	77 59 35	2247	79 46 53	2238	81 34 24	2229	83 22 9	2220
	Spica	W.	67 42 1	2223	69 29 55	2213	71 18 4	2204	73 6 25	2196
	Jupiter	W.	40 51 12	2202	42 39 37	2193	44 28 15	2184	46 17 7	2176
	Antares	W.	22 59 52	2389	24 43 43	2358	26 28 18	2331	28 13 32	2309
	Fomalhaut	E.	65 53 6	2805	64 18 45	2814	62 44 36	2825	61 10 40	2838
	α Pegasi	E.	81 26 57	2379	79 42 52	2372	77 58 37	2365	76 14 12	2359
	Mars	E.	107 26 32	2459	105 44 21	2449	104 1 56	2439	102 19 17	2430
20	Saturn	W.	92 23 47	2186	94 12 36	2181	96 1 32	2177	97 50 35	2173
	Spica	W.	82 11 6	2162	84 0 31	2157	85 50 4	2152	87 39 45	2148
	Jupiter	W.	55 24 19	2142	57 14 14	2137	59 4 17	2132	60 54 27	2128
	Antares	W.	37 6 38	2232	38 54 18	2221	40 42 14	2212	42 30 23	2204
	Fomalhaut	E.	53 26 44	2955	51 55 35	2990	50 25 10	3031	48 55 36	3078
	α Pegasi	E.	67 30 27	2345	65 45 32	2345	64 0 37	2346	62 15 44	2348
	Mars	E.	93 43 3	2393	91 59 18	2387	90 15 25	2382	88 31 24	2378
21	Saturn	W.	106 56 58	2162	108 46 23	2162	110 35 48	2162	112 25 13	2163
	Spica	W.	96 49 22	2135	98 39 28	2135	100 29 34	2134	102 19 41	2134

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
21	Jupiter W.	62 44 43	2125	64 35 4	2122	66 25 30	2120	68 15 59	2117
	Antares W.	44 18 45	2197	46 7 18	2191	47 55 59	2185	49 44 49	2181
	Fomalhaut E.	47 27 0	2131	45 59 28	2192	44 33 9	2161	43 8 12	2139
	α Pegasi E.	60 30 55	2352	58 46 11	2357	57 1 35	2364	55 17 9	2372
	Mars E.	86 47 18	2374	85 3 6	2371	83 18 49	2368	81 34 28	2366
	α Arietis E.	103 23 48	2198	101 35 18	2196	99 46 44	2192	97 58 4	2190
22	Jupiter W.	77 28 53	2116	79 19 27	2118	81 9 59	2119	83 0 29	2122
	Antares W.	58 50 12	2170	60 39 24	2170	62 28 36	2171	64 17 47	2172
	α Pegasi E.	46 38 49	2444	44 56 17	2465	43 14 15	2490	41 32 48	2519
	Mars E.	72 52 18	2364	71 7 52	2366	69 23 28	2368	67 39 7	2371
	α Arietis E.	88 54 12	2187	87 5 25	2189	85 16 41	2190	83 27 59	2193
23	Jupiter W.	92 11 53	2140	94 1 52	2145	95 51 43	2149	97 41 27	2155
	Antares W.	73 23 1	2186	75 11 50	2190	77 0 32	2195	78 49 7	2200
	Mars E.	58 58 30	2391	57 14 42	2396	55 31 1	2402	53 47 29	2408
	α Arietis E.	74 25 45	2214	72 37 39	2220	70 49 41	2227	69 1 54	2233
	SUN E.	131 16 36	2465	129 34 33	2469	127 52 36	2474	126 10 47	2479
24	Antares W.	87 49 55	2231	89 37 36	2239	91 25 15	2247	93 12 23	2255
	α Aquilæ W.	41 26 6	2439	42 51 29	2479	44 18 3	2485	45 45 42	2509
	Mars E.	45 12 18	2447	43 29 50	2457	41 47 36	2466	40 5 34	2476
	α Arietis E.	60 5 46	2277	58 19 12	2287	56 32 53	2298	54 46 50	2309
	SUN E.	117 43 42	2512	116 2 46	2520	114 22 1	2528	112 41 27	2536
25	α Aquilæ W.	53 15 53	2925	54 47 40	2906	56 19 51	2890	57 52 22	2876
	Mars E.	31 39 15	2535	29 58 50	2549	28 18 45	2564	26 39 0	2580
	α Arietis E.	46 1 1	2376	44 16 52	2392	42 33 6	2409	40 49 44	2427
	SUN E.	104 21 34	2581	102 42 13	2591	101 3 6	2600	99 24 11	2610
26	α Aquilæ W.	65 38 29	2838	67 12 7	2835	68 45 49	2834	70 19 32	2834
	Fomalhaut W.	39 47 33	2683	41 4 38	2602	42 23 10	2530	43 43 1	2468
	α Arietis E.	32 20 5	2544	30 39 53	2576	29 0 25	2611	27 21 44	2652
	SUN E.	91 13 6	2662	89 35 35	2672	87 58 18	2683	86 21 16	2694
27	α Aquilæ W.	78 7 46	2848	79 41 12	2853	81 14 31	2859	82 47 42	2866
	Fomalhaut W.	50 37 13	2254	52 2 19	2226	53 27 57	2201	54 54 5	2179
	α Pegasi W.	30 33 41	2057	32 2 43	2068	33 32 46	2069	35 3 37	2036
	SUN E.	78 19 38	2748	76 44 2	2759	75 8 40	2770	73 33 33	2780
28	α Aquilæ W.	90 31 10	2910	92 3 16	2920	93 35 9	2931	95 6 48	2943
	Fomalhaut W.	62 10 5	2111	63 38 1	2103	65 6 7	2097	66 34 21	2092
	α Pegasi W.	42 46 15	2840	44 19 51	2830	45 53 40	2822	47 27 39	2816
	SUN E.	65 41 28	2835	64 7 46	2845	62 34 17	2857	61 1 3	2867
29	Fomalhaut W.	73 56 27	2086	75 24 54	2088	76 53 18	2090	78 21 40	2093
	α Pegasi W.	55 18 54	2806	56 53 14	2807	58 27 33	2809	60 1 49	2811
	Mars W.	21 9 4	2896	22 41 28	2896	24 13 52	2898	25 46 14	2901
	SUN E.	53 18 20	2922	51 46 29	2933	50 14 52	2943	48 43 28	2955
30	Fomalhaut W.	85 42 8	2122	87 9 51	2129	88 37 25	2138	90 4 49	2147
	α Pegasi W.	67 52 8	2832	69 25 55	2837	70 59 35	2843	72 33 7	2849
	Mars W.	33 26 44	2928	34 58 28	2935	36 30 3	2942	38 1 29	2949
	α Arietis W.	24 23 35	2961	25 54 36	2937	27 26 8	2917	28 58 5	2902
	SUN E.	41 10 1	2011	39 40 1	2023	38 10 17	2034	36 40 46	2047

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
21	Jupiter W.	70 6 32	2116	71 57 6	2116	73 47 41	2115	75 38 17	2115
	Antares W.	51 33 45	2178	53 22 46	2175	55 11 52	2173	57 1 1	2171
	Fomalhaut E.	41 44 45	2128	40 23 0	2129	39 3 8	2126	37 45 23	2128
	α Pegasi E.	53 32 54	2134	51 48 54	2134	50 5 11	2129	48 21 49	2125
	Mars E.	79 50 5	2164	78 5 39	2163	76 21 12	2163	74 36 44	2164
	α Arietis E.	96 9 21	2188	94 20 35	2187	92 31 48	2186	90 43 0	2186
22	Jupiter W.	84 50 55	2124	86 41 17	2127	88 31 35	2131	90 21 47	2135
	Antares W.	66 6 57	2174	67 56 4	2176	69 45 7	2179	71 34 6	2182
	α Pegasi E.	39 52 1	2152	38 11 59	2150	36 32 50	2133	34 54 39	2183
	Mars E.	65 54 50	2173	64 10 36	2177	62 26 28	2181	60 42 26	2185
	α Arietis E.	81 39 21	2196	79 50 48	2200	78 2 20	2204	76 13 59	2209
23	Jupiter W.	99 31 3	2161	101 20 30	2167	103 9 47	2174	104 58 54	2181
	Antares W.	80 37 34	2206	82 25 53	2211	84 14 4	2218	86 2 4	2224
	Mars E.	52 4 6	2215	50 20 53	2222	48 37 59	2230	46 54 58	2238
	α Arietis E.	67 14 16	2241	65 26 50	2249	63 39 36	2258	61 52 34	2267
	SUN E.	124 29 4	2285	122 47 30	2292	121 6 5	2298	119 24 49	2305
24	Antares W.	94 59 29	2263	96 46 23	2272	98 33 4	2280	100 19 33	2289
	α Aquilæ W.	47 14 17	2309	48 43 42	2304	50 13 50	2294	51 44 35	2298
	Mars E.	38 23 47	2287	36 42 15	2298	35 0 59	2309	33 19 58	2322
	α Arietis E.	53 1 3	2321	51 15 34	2333	49 30 23	2347	47 45 32	2361
	SUN E.	111 1 4	2345	109 20 53	2353	107 40 54	2363	106 1 8	2372
25	α Aquilæ W.	59 25 11	2265	60 58 15	2255	62 31 31	2248	64 4 56	2242
	Mars E.	24 59 38	2297	23 20 39	2267	21 42 7	2260	20 4 6	2265
	α Arietis E.	39 6 48	2247	37 24 20	2248	35 42 22	2241	34 0 56	2236
	SUN E.	97 45 30	2221	96 7 4	2230	94 28 59	2241	92 50 51	2252
26	α Aquilæ W.	71 53 16	2235	73 26 58	2236	75 0 39	2240	76 34 15	2244
	Fomalhaut W.	45 4 1	2243	46 26 3	2265	47 49 0	2233	49 12 45	2286
	α Arietis E.	25 44 0	2299	24 7 18	2254	22 31 50	2221	20 57 49	2299
	SUN E.	84 44 28	2205	83 7 54	2215	81 31 34	2226	79 55 29	2237
27	α Aquilæ W.	84 20 44	2273	85 53 37	2282	87 26 19	2290	88 58 51	2290
	Fomalhaut W.	56 20 39	2161	57 47 35	2146	59 14 49	2132	60 42 20	2120
	α Pegasi W.	36 35 10	2209	38 7 18	2286	39 39 53	2268	41 12 55	2252
	SUN E.	71 58 39	2291	70 24 0	2282	68 49 35	2214	67 15 25	2224
28	α Aquilæ W.	96 38 12	2256	98 9 20	2269	99 40 12	2283	101 10 46	2297
	Fomalhaut W.	68 2 40	2288	69 31 4	2286	70 59 30	2285	72 27 58	2284
	α Pegasi W.	49 1 46	2211	50 35 59	2209	52 10 15	2207	53 44 34	2206
	SUN E.	59 28 2	2279	57 55 16	2289	56 22 43	2291	54 50 25	2291
29	Fomalhaut W.	79 49 58	2207	81 18 11	2203	82 46 17	2209	84 14 16	2215
	α Pegasi W.	61 36 2	2214	63 10 11	2218	64 44 15	2222	66 18 15	2227
	Mars W.	27 18 32	2205	28 50 45	2209	30 22 52	2215	31 54 52	2221
	SUN E.	47 12 19	2266	45 41 23	2277	44 10 42	2288	42 40 14	2290
30	Fomalhaut W.	91 32 2	2156	92 59 4	2166	94 25 54	2177	95 52 30	2189
	α Pegasi W.	74 6 32	2255	75 39 49	2262	77 12 57	2269	78 45 56	2276
	Mars W.	39 32 46	2256	41 3 54	2265	42 34 51	2272	44 5 39	2280
	α Arietis W.	30 30 21	2291	32 2 51	2283	33 35 32	2277	35 8 21	2273
	SUN E.	35 11 31	2309	33 42 31	2307	32 13 46	2304	30 45 17	2308

Day of the Month.	AIRY'S Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1°28100	0°74767	0°26938	1°50086	95°861
2	1°28773	0°73946	0°27013	1°50110	95°528
3	1°29439	0°73153	0°27088	1°50133	95°186
4	1°30098	0°72391	0°27164	1°50155	94°836
5	1°30751	0°71661	0°27240	1°50177	94°478
6	1°31396	0°70965	0°27316	1°50198	94°113
7	1°32034	0°70306	0°27392	1°50218	93°741
8	1°32665	0°69684	0°27467	1°50236	93°361
9	1°33289	0°69103	0°27543	1°50254	92°974
10	1°33906	0°68565	0°27619	1°50271	92°580
11	1°34515	0°68071	0°27695	1°50288	92°177
12	1°35118	0°67624	0°27771	1°50304	91°768
13	1°35714	0°67225	0°27847	1°50319	91°352
14	1°36303	0°66874	0°27924	1°50333	90°928
15	1°36884	0°66573	0°28000	1°50346	90°498
16	1°37458	0°66323	0°28076	1°50359	90°062
17	1°38026	0°66125	0°28153	1°50371	89°619
18	1°38587	0°65979	0°28229	1°50382	89°170
19	1°39141	0°65886	0°28305	1°50392	88°715
20	1°39687	0°65847	0°28381	1°50401	88°253
21	1°40227	0°65864	0°28457	1°50409	87°784
22	1°40760	0°65935	0°28533	1°50416	87°310
23	1°41287	0°66059	0°28609	1°50423	86°831
24	1°41807	0°66236	0°28684	1°50429	86°345
25	1°42320	0°66465	0°28759	1°50434	85°854
26	1°42827	0°66745	0°28834	1°50438	85°358
27	1°43328	0°67078	0°28908	1°50442	84°856
28	1°43822	0°67459	0°28982	1°50445	84°349
29	1°44309	0°67889	0°29056	1°50446	83°836
30	1°44789	0°68362	0°29130	1°50447	83°320
31	1°45262	0°68879	0°29204	1°50446	82°799

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.		Mean Equinoctial Time, adding 0 ^d .238545.	From Mean Noon of January 1.		
	At Mean Midnight, Logarithms of							Days.	Day of the Year.	Fraction of the Year.*
	A	B	C	D						
1	-0.7710	-1.2880	+9.8192	+0.8252	19 15 56.96	71	152	.4162		
2	0.7484	1.2903	9.8213	0.8263	19 12 1.05	72	153	.4189		
3	0.7245	1.2925	9.8234	0.8274	19 8 5.14	73	154	.4216		
4	-0.6991	-1.2946	+9.8255	+0.8284	19 4 9.23	74	155	.4244		
5	0.6721	1.2965	9.8276	0.8294	19 0 13.31	75	156	.4271		
6	0.6430	1.2983	9.8297	0.8304	18 56 17.40	76	157	.4299		
7	-0.6118	-1.3000	+9.8318	+0.8313	18 52 21.49	77	158	.4326		
8	0.5780	1.3016	9.8339	0.8322	18 48 25.58	78	159	.4353		
9	0.5413	1.3030	9.8360	0.8330	18 44 29.67	79	160	.4381		
10	-0.5011	-1.3043	+9.8381	+0.8338	18 40 33.76	80	161	.4408		
11	0.4566	1.3055	9.8402	0.8346	18 36 37.85	81	162	.4435		
12	0.4069	1.3065	9.8423	0.8354	18 32 41.94	82	163	.4463		
13	-0.3506	-1.3074	+9.8444	+0.8361	18 28 46.03	83	164	.4490		
14	0.2859	1.3083	9.8464	0.8367	18 24 50.11	84	165	.4518		
15	0.2097	1.3090	9.8485	0.8373	18 20 54.20	85	166	.4545		
16	-0.1170	-1.3095	+9.8506	+0.8379	18 16 58.29	86	167	.4572		
17	9.9989	1.3100	9.8526	0.8385	18 13 2.38	87	168	.4600		
18	9.8361	1.3103	9.8546	0.8390	18 9 6.47	88	169	.4627		
19	-9.5724	-1.3105	+9.8567	+0.8394	18 5 10.56	89	170	.4654		
20	-8.7893	1.3106	9.8587	0.8399	18 1 14.65	90	171	.4682		
21	+9.3990	1.3106	9.8607	0.8403	17 57 18.74	91	172	.4709		
22	+9.7502	-1.3104	+9.8627	+0.8406	17 53 22.82	92	173	.4737		
23	9.9417	1.3101	9.8647	0.8409	17 49 26.91	93	174	.4764		
24	0.0741	1.3097	9.8667	0.8412	17 45 31.00	94	175	.4791		
25	+0.1753	-1.3092	+9.8687	+0.8414	17 41 35.09	95	176	.4819		
26	0.2572	1.3086	9.8706	0.8416	17 37 39.18	96	177	.4846		
27	0.3268	1.3078	9.8726	0.8418	17 33 43.27	97	178	.4873		
28	+0.3853	-1.3069	+9.8745	+0.8419	17 29 47.36	98	179	.4901		
29	0.4373	1.3059	9.8764	0.8419	17 25 51.44	99	180	.4928		
30	0.4837	1.3048	9.8784	0.8420	17 21 55.53	100	181	.4956		
31	+0.5255	-1.3035	+9.8802	+0.8420	17 17 59.62	101	182	.4983		

* Add .0011 if Fraction be required for the time 4, see page 319.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		h m s	°	° ° ' "	"	m s	m s	"
Frid.	1	6 42 44.37	10° 339	N. 23 5 27.9	10° 56	I 8° 75	3 33.92	0° 481
Sat.	2	6 46 52.39	10° 328	23 1 2.3	11° 57	I 8° 71	3 45.35	0° 470
Sun.	3	6 51 0.13	10° 316	22 56 12.6	12° 57	I 8° 67	3 56.50	0° 458
Mon.	4	6 55 7.56	10° 303	22 50 58.9	13° 56	I 8° 63	4 7.34	0° 445
Tues.	5	6 59 14.67	10° 288	22 45 21.5	14° 55	I 8° 58	4 17.87	0° 431
Wed.	6	7 3 21.41	10° 273	22 39 20.3	15° 54	I 8° 53	4 28.03	0° 416
Thur.	7	7 7 27.79	10° 257	22 32 55.6	16° 52	I 8° 48	4 37.82	0° 400
Frid.	8	7 11 33.78	10° 241	22 26 7.5	17° 49	I 8° 43	4 47.23	0° 383
Sat.	9	7 15 39.34	10° 223	22 18 56.1	18° 45	I 8° 37	4 56.21	0° 365
Sun.	10	7 19 44.47	10° 203	22 11 21.7	19° 41	I 8° 31	5 4.76	0° 347
Mon.	11	7 23 49.15	10° 186	22 3 24.5	20° 36	I 8° 25	5 12.87	0° 328
Tues.	12	7 27 53.36	10° 166	21 55 4.5	21° 30	I 8° 18	5 20.50	0° 308
Wed.	13	7 31 57.10	10° 145	21 46 22.1	22° 23	I 8° 12	5 27.66	0° 288
Thur.	14	7 36 0.33	10° 124	21 37 17.4	23° 13	I 8° 05	5 34.31	0° 267
Frid.	15	7 40 3.06	10° 103	21 27 50.6	24° 07	I 7° 98	5 40.46	0° 246
Sat.	16	7 44 5.27	10° 081	21 18 1.9	24° 98	I 7° 91	5 46.10	0° 224
Sun.	17	7 48 6.94	10° 059	21 7 51.6	25° 88	I 7° 84	5 51.21	0° 202
Mon.	18	7 52 8.08	10° 036	20 57 19.8	26° 77	I 7° 76	5 55.78	0° 179
Tues.	19	7 56 8.67	10° 013	20 46 26.8	27° 65	I 7° 68	5 59.86	0° 156
Wed.	20	8 0 8.72	9° 990	20 35 12.8	28° 52	I 7° 60	6 3.28	0° 133
Thur.	21	8 4 8.20	9° 967	20 23 38.0	29° 38	I 7° 52	6 6.20	0° 110
Frid.	22	8 8 7.13	9° 944	20 11 42.6	30° 23	I 7° 44	6 8.57	0° 087
Sat.	23	8 12 5.49	9° 921	19 59 26.9	31° 07	I 7° 36	6 10.37	0° 063
Sun.	24	8 16 3.29	9° 897	19 46 51.0	31° 91	I 7° 28	6 11.60	0° 040
Mon.	25	8 20 0.53	9° 874	19 33 55.3	32° 73	I 7° 19	6 12.29	0° 017
Tues.	26	8 23 57.20	9° 850	19 20 40.0	33° 54	I 7° 11	6 12.40	0° 007
Wed.	27	8 27 53.30	9° 826	19 7 5.4	34° 34	I 7° 02	6 11.95	0° 031
Thur.	28	8 31 48.81	9° 801	18 53 11.9	35° 14	I 6° 94	6 10.90	0° 056
Frid.	29	8 35 43.73	9° 777	18 38 59.5	35° 90	I 6° 85	6 9.28	0° 080
Sat.	30	8 39 38.07	9° 752	18 24 28.8	36° 66	I 6° 77	6 7.07	0° 104
Sun.	31	8 43 31.82	9° 727	18 9 40.0	37° 41	I 6° 68	6 4.28	0° 129
Mon.	32	8 47 24.97		N. 17 54 33.3		I 6° 59	6 0.87	

Mean Time of the Semidiameter passing may be found by subtracting 0° 19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subtracted from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
Frid.	1	^h 6 ^m 42 ^s 43.76	[°] N.23 ['] 5 ["] 28.5	['] 15 ["] 45.9	^m 3 ^s 33.89	^h 6 ^m 39 ^s 9.87
Sat.	2	6 46 51.74	23 1 3.0	15 45.9	3 45.32	6 43 6.42
Sun.	3	6 50 59.45	22 56 13.4	15 45.9	3 56.47	6 47 2.98
Mon.	4	6 55 6.85	22 50 59.9	15 45.9	4 7.31	6 50 59.54
Tues.	5	6 59 13.93	22 45 22.5	15 45.9	4 17.84	6 54 56.09
Wed.	6	7 3 20.65	22 39 21.4	15 46.0	4 28.00	6 58 52.65
Thur.	7	7 7 27.00	22 32 56.8	15 46.0	4 37.79	7 2 49.21
Frid.	8	7 11 32.96	22 26 8.9	15 46.0	4 47.20	7 6 45.76
Sat.	9	7 15 38.50	22 18 57.7	15 46.0	4 56.18	7 10 42.32
Sun.	10	7 19 43.61	22 11 23.4	15 46.1	5 4.73	7 14 38.88
Mon.	11	7 23 48.27	22 3 26.3	15 46.1	5 12.84	7 18 35.43
Tues.	12	7 27 52.46	21 55 6.4	15 46.2	5 20.47	7 22 31.99
Wed.	13	7 31 56.18	21 46 24.1	15 46.2	5 27.63	7 26 28.55
Thur.	14	7 35 59.39	21 37 19.5	15 46.3	5 34.29	7 30 25.10
Frid.	15	7 40 2.10	21 27 52.9	15 46.3	5 40.44	7 34 21.66
Sat.	16	7 44 4.30	21 18 4.3	15 46.4	5 46.08	7 38 18.22
Sun.	17	7 48 5.96	21 7 54.1	15 46.5	5 51.19	7 42 14.77
Mon.	18	7 52 7.09	20 57 22.4	15 46.5	5 55.76	7 46 11.33
Tues.	19	7 56 7.67	20 46 29.5	15 46.6	5 59.78	7 50 7.89
Wed.	20	8 0 7.71	20 35 15.6	15 46.7	6 3.27	7 54 4.44
Thur.	21	8 4 7.19	20 23 41.0	15 46.8	6 6.19	7 58 1.00
Frid.	22	8 8 6.11	20 11 45.7	15 46.9	6 8.56	8 1 57.55
Sat.	23	8 12 4.47	19 59 30.1	15 46.9	6 10.36	8 5 54.11
Sun.	24	8 16 2.27	19 46 54.3	15 47.0	6 11.60	8 9 50.67
Mon.	25	8 19 59.51	19 33 58.7	15 47.1	6 12.29	8 13 47.22
Tues.	26	8 23 56.18	19 20 43.5	15 47.2	6 12.40	8 17 43.78
Wed.	27	8 27 52.28	19 7 9.0	15 47.3	6 11.95	8 21 40.33
Thur.	28	8 31 47.80	18 53 15.5	15 47.4	6 10.91	8 25 36.89
Frid.	29	8 35 42.73	18 39 3.2	15 47.5	6 9.29	8 29 33.44
Sat.	30	8 39 37.08	18 24 32.6	15 47.7	6 7.08	8 33 30.00
Sun.	31	8 43 30.84	18 9 43.8	15 47.8	6 4.29	8 37 26.55
Mon.	32	8 47 24.00	N.17 54 37.1	15 47.9	6 0.89	8 41 23.11

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	99 49 3 ⁵	S. 0° 60	0.0072425	15 20.9	15 16.8	56 13.9	55 59.0
2	100 46 16.4	0° 71	0.0072444	15 12.9	15 9.1	55 44.7	55 30.8
3	101 43 29.4	0° 80	0.0072437	15 5.5	15 2.1	55 17.5	55 4.9
4	102 40 42.4	0° 86	0.0072405	14 58.8	14 55.9	54 53.1	54 42.2
5	103 37 55.5	0° 89	0.0072346	14 53.2	14 50.8	54 32.4	54 23.7
6	104 35 8.6	0° 92	0.0072262	14 48.8	14 47.3	54 16.4	54 10.7
7	105 32 21.6	0° 90	0.0072152	14 46.1	14 45.5	54 6.5	54 4.2
8	106 29 34.7	0° 87	0.0072018	14 45.4	14 45.9	54 3.9	54 5.7
9	107 26 47.7	0° 82	0.0071860	14 47.0	14 48.7	54 9.7	54 16.0
10	108 24 0.7	0° 74	0.0071679	14 51.1	14 54.1	54 24.7	54 35.9
11	109 21 13.7	0° 65	0.0071476	14 57.9	15 2.3	54 49.6	55 5.7
12	110 18 26.7	0° 54	0.0071251	15 7.3	15 13.0	55 24.1	55 44.8
13	111 15 39.8	0° 43	0.0071007	15 19.2	15 25.9	56 7.6	56 32.1
14	112 12 53.0	0° 29	0.0070744	15 33.0	15 40.4	56 58.2	57 25.3
15	113 10 6.5	0° 16	0.0070464	15 48.0	15 55.6	57 53.1	58 21.0
16	114 7 20.1	S. 0° 04	0.0070167	16 3.1	16 10.3	58 48.5	59 14.8
17	115 4 34.0	N. 0° 07	0.0069855	16 17.0	16 23.0	59 39.4	60 1.6
18	116 1 48.3	0° 16	0.0069530	16 28.2	16 32.5	60 20.7	60 36.3
19	116 59 3.0	0° 22	0.0069191	16 35.7	16 37.7	60 47.9	60 55.2
20	117 56 18.2	0° 24	0.0068839	16 38.5	16 38.0	60 58.1	60 56.6
21	118 53 34.1	0° 22	0.0068475	16 36.5	16 33.8	60 50.8	60 41.1
22	119 50 50.7	0° 17	0.0068097	16 30.2	16 25.8	60 27.8	60 11.6
23	120 48 8.1	N. 0° 09	0.0067704	16 20.7	16 15.0	59 52.9	59 32.2
24	121 45 26.5	S. 0° 03	0.0067296	16 9.0	16 2.8	59 10.2	58 47.4
25	122 42 45.9	0° 15	0.0066870	15 56.5	15 50.2	58 24.3	58 1.2
26	123 40 6.3	0° 28	0.0066425	15 44.0	15 38.0	57 38.5	57 16.4
27	124 37 27.9	0° 41	0.0065959	15 32.2	15 26.7	56 55.2	56 35.1
28	125 34 50.6	0° 51	0.0065473	15 21.5	15 16.6	56 16.1	55 58.3
29	126 32 14.4	0° 62	0.0064966	15 12.1	15 8.0	55 41.7	55 26.3
30	127 29 39.3	0° 70	0.0064435	15 4.1	15 0.6	55 12.2	54 59.3
31	128 27 5.1	0° 77	0.0063881	14 57.3	14 54.4	54 47.6	54 37.0
32	129 24 32.0	S. 0° 80	0.0063304	14 51.9	14 49.7	54 27.6	54 19.5

MEAN TIME.

		THE MOON'S							
Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
Frid.	1	70° 35' 47.3	76° 58' 8.9	S. 2 1 7.1	S. 2 31 40.6	27.0	22 45.8		
Sat.	2	83 17 44.8	89 34 40.2	3 0 5.5	3 26 4.2	28.0	23 36.8		
Sun.	3	95 48 59.7	102 0 48.0	3 49 21.2	4 9 43.8	29.0	6		
Mon.	4	108 10 9.9	114 17 11.0	4 27 1.5	4 41 6.6	0.5	0 26.1		
Tues.	5	120 21 58.3	126 24 39.6	4 51 53.5	4 59 19.2	1.5	1 13.3		
Wed.	6	132 25 26.1	138 24 30.2	5 3 22.1	5 4 3.0	2.5	1 58.4		
Thur.	7	144 22 7.7	150 18 36.6	5 1 24.7	4 55 30.5	3.5	2 41.8		
Frid.	8	156 14 18.0	162 9 36.4	4 46 25.7	4 34 16.3	4.5	3 24.0		
Sat.	9	168 4 58.9	174 0 55.0	4 19 9.4	4 1 12.9	5.5	4 5.6		
Sun.	10	179 57 57.0	185 56 39.4	3 40 35.6	3 17 27.1	6.5	4 47.6		
Mon.	11	191 57 38.7	198 1 32.1	2 51 58.2	2 24 20.6	7.5	5 30.6		
Tues.	12	204 8 58.2	210 20 35.5	1 54 47.1	1 23 32.9	8.5	6 15.6		
Wed.	13	216 37 1.5	222 58 51.9	S. 0 50 54.7	S. 0 17 11.5	9.5	7 3.4		
Thur.	14	229 26 39.5	236 0 52.9	N. 0 17 15.2	N. 0 52 0.6	10.5	7 54.5		
Frid.	15	242 41 54.6	249 29 59.8	1 26 37.0	2 0 34.1	11.5	8 49.1		
Sat.	16	256 25 14.6	263 27 34.9	2 33 18.4	3 4 14.4	12.5	9 46.6		
Sun.	17	270 36 44.5	277 52 15.1	3 32 45.0	3 58 13.4	13.5	10 46.1		
Mon.	18	285 13 25.7	292 39 23.4	4 20 4.0	4 37 44.3	14.5	11 46.0		
Tues.	19	300 9 5.0	307 41 19.1	4 50 46.8	4 58 50.6	15.5	12 44.8		
Wed.	20	315 14 49.2	322 48 17.4	5 1 42.5	4 59 17.9	16.5	13 41.8		
Thur.	21	330 20 28.0	337 50 10.6	4 51 41.3	4 39 5.3	17.5	14 36.8		
Frid.	22	345 16 22.9	352 38 13.4	4 21 50.0	4 0 21.9	18.5	15 30.1		
Sat.	23	359 55 1.6	7 6 19.3	3 35 11.7	3 6 53.3	19.5	16 22.4		
Sun.	24	14 11 49.4	21 11 25.3	2 36 2.0	2 3 13.5	20.5	17 14.3		
Mon.	25	28 5 9.4	34 53 11.4	1 29 2.5	N. 0 54 2.7	21.5	18 6.2		
Tues.	26	41 35 46.4	48 13 13.7	N. 0 18 45.5	S. 0 16 19.8	22.5	18 58.3		
Wed.	27	54 45 55.1	61 14 13.9	S. 0 50 46.1	1 24 8.4	23.5	19 50.4		
Thur.	28	67 38 33.1	73 59 15.4	1 56 4.5	2 26 13.8	24.5	20 42.2		
Frid.	29	80 16 42.3	86 31 13.3	2 54 18.1	3 20 1.2	25.5	21 33.1		
Sat.	30	92 43 5.9	98 52 35.9	3 43 8.9	4 3 29.1	26.5	22 22.5		
Sun.	31	104 59 56.6	111 5 19.7	4 20 51.5	4 35 7.7	27.5	23 10.0		
Mon.	32	117 8 55.6	123 10 53.5	S. 4 46 11.5	S. 4 53 58.7	28.5	23 55.7		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 1.				SUNDAY 3.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	4 37 12.55	N.20 3 7.2	18.44	0	6 24 38.01	N.19 30 28.9	31.95
1	4 39 28.85	20 4 57.8	17.34	1	6 26 49.11	19 27 17.2	32.92
2	4 41 45.10	20 6 41.9	16.24	2	6 29 0.03	19 23 59.7	33.87
3	4 44 1.32	20 8 19.3	15.15	3	6 31 10.78	19 20 36.5	34.81
4	4 46 17.48	20 9 50.2	14.05	4	6 33 21.36	19 17 7.7	35.75
5	4 48 33.60	20 11 14.5	12.95	5	6 35 31.76	19 13 33.2	36.68
6	4 50 49.66	20 12 32.2	11.86	6	6 37 41.99	19 9 53.1	37.61
7	4 53 5.67	20 13 43.3	10.77	7	6 39 52.04	19 6 7.4	38.53
8	4 55 21.62	20 14 47.9	9.67	8	6 42 1.90	19 2 16.3	39.45
9	4 57 37.51	20 15 45.9	8.57	9	6 44 11.59	18 58 19.6	40.37
10	4 59 53.33	20 16 37.3	7.48	10	6 46 21.09	18 54 17.4	41.27
11	5 2 9.09	20 17 22.2	6.39	11	6 48 30.41	18 50 9.8	42.16
12	5 4 24.77	20 18 0.5	5.30	12	6 50 39.53	18 45 56.9	43.05
13	5 6 40.38	20 18 32.3	4.22	13	6 52 48.47	18 41 38.6	43.94
14	5 8 55.92	20 18 57.6	3.13	14	6 54 57.22	18 37 15.0	44.82
15	5 11 11.37	20 19 16.4	2.04	15	6 57 5.78	18 32 46.1	45.69
16	5 13 26.75	20 19 28.7	0.96	16	6 59 14.15	18 28 11.9	46.56
17	5 15 42.03	20 19 34.4	0.12	17	7 1 22.33	18 23 32.6	47.42
18	5 17 57.23	20 19 33.7	1.20	18	7 3 30.31	18 18 48.1	48.27
19	5 20 12.34	20 19 26.6	2.28	19	7 5 38.10	18 13 58.5	49.12
20	5 22 27.35	20 19 12.9	3.35	20	7 7 45.69	18 9 3.7	49.96
21	5 24 42.27	20 18 52.8	4.42	21	7 9 53.09	18 4 4.0	50.80
22	5 26 57.08	20 18 26.3	5.48	22	7 12 0.29	17 58 59.2	51.63
23	5 29 11.79	N.20 17 53.4	6.55	23	7 14 7.28	N.17 53 49.4	52.44
SATURDAY 2.				MONDAY 4.			
0	5 31 26.40	N.20 17 14.1	7.61	0	7 16 14.08	N.17 48 34.8	53.26
1	5 33 40.90	20 16 28.4	8.67	1	7 18 20.68	17 43 15.2	54.07
2	5 35 55.28	20 15 36.4	9.73	2	7 20 27.08	17 37 50.8	54.87
3	5 38 9.55	20 14 38.0	10.78	3	7 22 33.28	17 32 21.6	55.66
4	5 40 23.70	20 13 33.3	11.83	4	7 24 39.27	17 26 47.6	56.45
5	5 42 37.73	20 12 22.3	12.88	5	7 26 45.07	17 21 8.9	57.24
6	5 44 51.64	20 11 5.0	13.92	6	7 28 50.66	17 15 25.5	58.01
7	5 47 5.42	20 9 41.5	14.96	7	7 30 56.05	17 9 37.4	58.78
8	5 49 19.08	20 8 11.8	15.99	8	7 33 1.24	17 3 44.8	59.54
9	5 51 32.60	20 6 35.8	17.02	9	7 35 6.22	16 57 47.5	60.29
10	5 53 45.99	20 4 53.7	18.05	10	7 37 11.00	16 51 45.8	61.04
11	5 55 59.25	20 3 5.4	19.07	11	7 39 15.58	16 45 39.6	61.78
12	5 58 12.36	20 1 11.0	20.08	12	7 41 19.95	16 39 28.9	62.51
13	6 0 25.33	19 59 10.5	21.10	13	7 43 24.12	16 33 13.8	63.24
14	6 2 38.16	19 57 3.8	22.12	14	7 45 28.08	16 26 54.4	63.95
15	6 4 50.84	19 54 51.1	23.12	15	7 47 31.84	16 20 30.7	64.67
16	6 6 7.37	19 52 32.4	24.12	16	7 49 35.40	16 14 2.7	65.38
17	6 9 15.75	19 50 7.7	25.12	17	7 51 38.76	16 7 30.4	66.07
18	6 11 27.98	19 47 37.0	26.11	18	7 53 41.91	16 0 54.0	66.76
19	6 13 40.05	19 45 0.4	27.10	19	7 55 44.86	15 54 13.5	67.45
20	6 15 51.97	19 42 17.8	28.08	20	7 57 47.61	15 47 28.8	68.12
21	6 18 3.72	19 39 29.3	29.05	21	7 59 50.16	15 40 40.1	68.79
22	6 20 15.32	19 36 35.0	30.03	22	8 1 52.50	15 33 47.3	69.45
23	6 22 26.75	19 33 34.8	30.99	23	8 3 54.64	15 26 50.6	70.11
24	6 24 38.01	N.19 30 28.9		24	8 5 56.59	N.15 19 49.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 5.				THURSDAY 7.			
0	8 ^h 5 ^m 56 ^s 59	N. 15° 19' 49".9	70".75	0	9 ^h 39 ^m 56 ^s 59	N. 8° 39' 53".9	93".77
1	8 7 58 33	15 12 45".4	71".40	1	9 41 50 31	8 30 31".3	94".09
2	8 9 59 88	15 5 37".0	72".03	2	9 43 43 91	8 21 6".8	94".40
3	8 12 1 23	14 58 24".8	72".65	3	9 45 37 40	8 11 40".4	94".70
4	8 14 2 38	14 51 8".9	73".28	4	9 47 30 77	8 2 12".2	95".00
5	8 16 3 33	14 43 49".2	73".89	5	9 49 24 02	7 52 42".2	95".30
6	8 18 4 08	14 36 25".8	74".50	6	9 51 17 17	7 43 10".4	95".58
7	8 20 4 64	14 28 58".9	75".10	7	9 53 10 21	7 33 36".9	95".87
8	8 22 5 01	14 21 28".3	75".69	8	9 55 3 14	7 24 1 7	96".15
9	8 24 5 19	14 13 54".1	76".27	9	9 56 55 97	7 14 24".8	96".42
10	8 26 5 17	14 6 16".5	76".85	10	9 58 48 70	7 4 46".3	96".68
11	8 28 4 96	13 58 35".4	77".42	11	10 0 41 33	6 55 6".2	96".93
12	8 30 4 57	13 50 50".8	77".98	12	10 2 33 86	6 45 24".7	97".18
13	8 32 3 98	13 43 2 9	78".54	13	10 4 26 30	6 35 41".6	97".43
14	8 34 3 21	13 35 11".6	79".08	14	10 6 18 66	6 25 57".1	97".67
15	8 36 2 26	13 27 17".1	79".63	15	10 8 10 92	6 16 11".1	97".90
16	8 38 1 11	13 19 19".3	80".17	16	10 10 3 11	6 6 23".7	98".13
17	8 39 59 79	13 11 18".2	80".70	17	10 11 55 21	5 56 34".9	98".35
18	8 41 58 28	13 3 14".0	81".22	18	10 13 47 23	5 46 44".8	98".57
19	8 43 56 59	12 55 6".7	81".74	19	10 15 39 18	5 36 53".4	98".77
20	8 45 54 72	12 46 56".2	82".25	20	10 17 31 05	5 27 0 8	98".98
21	8 47 52 67	12 38 42".8	82".75	21	10 19 22 86	5 17 6".9	99".18
22	8 49 50 44	12 30 26".3	83".24	22	10 21 14 59	5 7 11".8	99".37
23	8 51 48 04	N. 12° 22' 6".8	83".73	23	10 23 6 26	N. 4° 57' 15".6	99".56
WEDNESDAY 6.				FRIDAY 8.			
0	8 53 45 47	N. 12° 13' 44".5	84".20	0	10 24 57 87	N. 4° 47' 18".2	99".74
1	8 55 42 73	12 5 19".3	84".68	1	10 26 49 42	4 37 19".8	99".91
2	8 57 39 81	11 56 51".2	85".15	2	10 28 40 91	4 27 20".3	100".08
3	8 59 36 73	11 48 20".4	85".60	3	10 30 32 35	4 17 19".8	100".25
4	9 1 33 48	11 39 46".7	86".06	4	10 32 23 74	4 7 18".4	100".41
5	9 3 30 07	11 31 10".4	86".51	5	10 34 15 08	3 57 15".9	100".56
6	9 5 26 49	11 22 31".3	86".95	6	10 36 6 38	3 47 12".6	100".70
7	9 7 22 76	11 13 49".6	87".38	7	10 37 57 64	3 37 8".4	100".85
8	9 9 18 86	11 5 5 3	87".81	8	10 39 48 85	3 27 3 3	100".98
9	9 11 14 81	10 56 18".4	88".23	9	10 41 40 03	3 16 57".4	101".12
10	9 13 10 60	10 47 29".0	88".65	10	10 43 31 18	3 6 50".7	101".24
11	9 15 6 24	10 38 37".1	89".05	11	10 45 22 30	2 56 43".3	101".36
12	9 17 1 73	10 29 42".8	89".45	12	10 47 13 39	2 46 35".1	101".47
13	9 18 57 07	10 20 46".1	89".85	13	10 49 4 46	2 36 26".3	101".58
14	9 20 52 26	10 11 47".0	90".24	14	10 50 55 50	2 26 16".8	101".68
15	9 22 47 31	10 2 45".6	90".62	15	10 52 46 53	2 16 6".7	101".78
16	9 24 42 22	9 53 41".8	91".00	16	10 54 37 54	2 5 56".0	101".87
17	9 26 36 98	9 44 35".8	91".37	17	10 56 28 55	1 55 44".8	101".95
18	9 28 31 61	9 35 27".6	91".73	18	10 58 19 54	1 45 33".1	102".03
19	9 30 26 10	9 26 17".2	92".09	19	11 0 10 53	1 35 20".9	102".11
20	9 32 20 46	9 17 4 7	92".44	20	11 2 1 51	1 25 8".2	102".18
21	9 34 14 68	9 7 50".0	92".78	21	11 3 52 49	1 14 55".2	102".24
22	9 36 8 78	8 58 33".3	93".12	22	11 5 43 48	1 4 41".7	102".30
23	9 38 2 75	8 49 14".6	93".45	23	11 7 34 48	0 54 27".9	102".35
24	9 39 56 59	N. 8° 39' 53".9		24	11 9 25 49	N. 0° 44' 13".8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 9.				MONDAY 11.			
0	11 9 25.49	N. 0 44 13.8	102.40	0	12 39 28.52	S. 7 22 7.8	97.90
1	11 11 16.51	0 33 59.4	102.43	1	12 41 23.98	7 31 55.2	97.67
2	11 13 7.54	0 23 44.8	102.47	2	12 43 19.61	7 41 41.2	97.44
3	11 14 58.60	0 13 30.0	102.50	3	12 45 15.42	7 51 25.7	97.17
4	11 16 49.67	N. 0 3 15.0	102.53	4	12 47 11.40	8 1 8.7	96.90
5	11 18 40.77	S. 0 7 0.2	102.55	5	12 49 7.57	8 10 50.1	96.62
6	11 20 31.90	0 17 15.5	102.56	6	12 51 3.92	8 20 29.8	96.35
7	11 22 23.06	0 27 30.8	102.57	7	12 53 0.47	8 30 7.9	96.07
8	11 24 14.26	0 37 46.2	102.57	8	12 54 57.20	8 39 44.3	95.77
9	11 26 5.50	0 48 1.6	102.57	9	12 56 54.13	8 49 18.9	95.47
10	11 27 56.77	0 58 17.0	102.57	10	12 58 51.26	8 58 51.7	95.17
11	11 29 48.10	1 8 32.4	102.55	11	13 0 48.59	9 8 22.7	94.85
12	11 31 39.47	1 18 47.7	102.53	12	13 2 46.13	9 17 51.8	94.53
13	11 33 30.89	1 29 2.9	102.50	13	13 4 43.87	9 27 19.0	94.21
14	11 35 22.37	1 39 17.9	102.47	14	13 6 41.83	9 36 44.3	93.88
15	11 37 13.90	1 49 32.7	102.43	15	13 8 40.00	9 46 7.5	93.54
16	11 39 5.50	1 59 47.3	102.39	16	13 10 38.39	9 55 28.8	93.19
17	11 40 57.16	2 10 1.7	102.35	17	13 12 37.00	10 4 47.9	92.83
18	11 42 48.88	2 20 15.8	102.29	18	13 14 35.83	10 14 4.9	92.47
19	11 44 40.68	2 30 29.5	102.23	19	13 16 34.89	10 23 19.7	92.10
20	11 46 32.56	2 40 42.9	102.16	20	13 18 34.18	10 32 32.2	91.72
21	11 48 24.51	2 50 55.9	102.09	21	13 20 33.70	10 41 42.5	91.33
22	11 50 16.54	3 1 8.4	102.01	22	13 22 33.45	10 50 50.5	90.93
23	11 52 8.66	S. 3 11 20.5	101.93	23	13 24 33.45	S. 10 59 56.1	90.53
SUNDAY 10.				TUESDAY 12.			
0	11 54 0.86	S. 3 21 32.0	101.84	0	13 26 33.68	S. 11 8 59.3	90.12
1	11 55 53.15	3 31 43.0	101.75	1	13 28 34.16	11 18 0.1	89.70
2	11 57 45.54	3 41 53.5	101.65	2	13 30 34.88	11 26 58.3	89.28
3	11 59 38.03	3 52 3.4	101.53	3	13 32 35.86	11 35 54.0	88.85
4	12 1 30.61	4 2 12.6	101.42	4	13 34 37.09	11 44 47.1	88.40
5	12 3 23.30	4 12 21.1	101.30	5	13 36 38.58	11 53 37.5	87.96
6	12 5 16.10	4 22 28.9	101.18	6	13 38 40.32	12 2 25.3	87.50
7	12 7 9.01	4 32 36.0	101.05	7	13 40 42.32	12 11 10.3	87.03
8	12 9 2.03	4 42 42.3	100.92	8	13 42 44.59	12 19 52.5	86.56
9	12 10 55.17	4 52 47.8	100.78	9	13 44 47.13	12 28 31.9	86.07
10	12 12 48.43	5 2 52.5	100.63	10	13 46 49.93	12 37 8.3	85.58
11	12 14 41.81	5 12 56.3	100.47	11	13 48 53.01	12 45 41.8	85.08
12	12 16 35.31	5 22 59.1	100.31	12	13 50 56.35	12 54 12.3	84.57
13	12 18 28.95	5 33 1.0	100.15	13	13 52 59.98	13 2 39.8	84.05
14	12 20 22.72	5 43 1.9	99.98	14	13 55 3.88	13 11 4.1	83.53
15	12 22 16.63	5 53 1.7	99.80	15	13 57 8.07	13 19 25.3	83.00
16	12 24 10.68	6 3 0.5	99.62	16	13 59 12.54	13 27 43.3	82.45
17	12 26 4.88	6 12 58.2	99.43	17	14 1 17.30	13 35 58.0	81.90
18	12 27 59.22	6 22 54.8	99.23	18	14 3 22.34	13 44 9.5	81.34
19	12 29 53.71	6 32 50.1	99.03	19	14 5 27.68	13 52 17.5	80.77
20	12 31 48.35	6 42 44.3	98.81	20	14 7 33.31	14 0 22.2	80.19
21	12 33 43.15	6 52 37.2	98.60	21	14 9 39.23	14 8 23.3	79.60
22	12 35 38.11	7 2 28.7	98.37	22	14 11 45.45	14 16 20.9	79.01
23	12 37 33.23	7 12 19.0	98.14	23	14 13 51.98	14 24 15.0	78.40
24	12 39 28.52	S. 7 22 7.8		24	14 15 58.80	S. 14 32 5.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
WEDNESDAY 13.				FRIDAY 15.			
0	14 15 58 ^{h m s} .80	S. 14 32 5 ^{o ' ' "} .4	77 ^{''} .79	0	16 3 44 ^{h m s} .09	S. 19 17 49 ^{o ' ' "} .4	36 ^{''} .53
1	14 18 5 ^{h m s} .93	14 39 52 ^{o ' ' "} .1	77 ^{''} .16	1	16 6 6 ^{h m s} .72	19 21 28 ^{o ' ' "} .6	35 ^{''} .43
2	14 20 13 ^{h m s} .36	14 47 35 ^{o ' ' "} .1	76 ^{''} .52	2	16 8 29 ^{h m s} .66	19 25 1 ^{o ' ' "} .2	34 ^{''} .32
3	14 22 21 ^{h m s} .10	14 55 14 ^{o ' ' "} .2	75 ^{''} .88	3	16 10 52 ^{h m s} .90	19 28 27 ^{o ' ' "} .1	33 ^{''} .19
4	14 24 29 ^{h m s} .15	15 2 49 ^{o ' ' "} .5	75 ^{''} .22	4	16 13 16 ^{h m s} .44	19 31 46 ^{o ' ' "} .3	32 ^{''} .05
5	14 26 37 ^{h m s} .50	15 10 20 ^{o ' ' "} .8	74 ^{''} .56	5	16 15 40 ^{h m s} .28	19 34 58 ^{o ' ' "} .6	30 ^{''} .91
6	14 28 46 ^{h m s} .17	15 17 48 ^{o ' ' "} .2	73 ^{''} .88	6	16 18 4 ^{h m s} .42	19 38 4 ^{o ' ' "} .1	29 ^{''} .76
7	14 30 55 ^{h m s} .16	15 25 11 ^{o ' ' "} .5	73 ^{''} .20	7	16 20 28 ^{h m s} .85	19 41 2 ^{o ' ' "} .6	28 ^{''} .60
8	14 33 4 ^{h m s} .46	15 32 30 ^{o ' ' "} .7	72 ^{''} .51	8	16 22 53 ^{h m s} .57	19 43 54 ^{o ' ' "} .2	27 ^{''} .43
9	14 35 14 ^{h m s} .08	15 39 45 ^{o ' ' "} .8	71 ^{''} .81	9	16 25 18 ^{h m s} .58	19 46 38 ^{o ' ' "} .8	26 ^{''} .25
10	14 37 24 ^{h m s} .01	15 46 56 ^{o ' ' "} .7	71 ^{''} .10	10	16 27 43 ^{h m s} .88	19 49 16 ^{o ' ' "} .3	25 ^{''} .06
11	14 39 34 ^{h m s} .27	15 54 3 ^{o ' ' "} .2	70 ^{''} .37	11	16 30 9 ^{h m s} .45	19 51 46 ^{o ' ' "} .7	23 ^{''} .86
12	14 41 44 ^{h m s} .85	16 1 5 ^{o ' ' "} .4	69 ^{''} .64	12	16 32 35 ^{h m s} .30	19 54 9 ^{o ' ' "} .8	22 ^{''} .66
13	14 43 55 ^{h m s} .75	16 8 3 ^{o ' ' "} .3	68 ^{''} .90	13	16 35 1 ^{h m s} .43	19 56 25 ^{o ' ' "} .8	21 ^{''} .45
14	14 46 6 ^{h m s} .98	16 14 56 ^{o ' ' "} .7	68 ^{''} .15	14	16 37 27 ^{h m s} .83	19 58 34 ^{o ' ' "} .4	20 ^{''} .23
15	14 48 18 ^{h m s} .53	16 21 45 ^{o ' ' "} .6	67 ^{''} .38	15	16 39 54 ^{h m s} .50	20 0 35 ^{o ' ' "} .8	19 ^{''} .00
16	14 50 30 ^{h m s} .40	16 28 29 ^{o ' ' "} .9	66 ^{''} .61	16	16 42 21 ^{h m s} .44	20 2 29 ^{o ' ' "} .8	17 ^{''} .76
17	14 52 42 ^{h m s} .61	16 35 9 ^{o ' ' "} .5	65 ^{''} .83	17	16 44 48 ^{h m s} .63	20 4 16 ^{o ' ' "} .3	16 ^{''} .52
18	14 54 55 ^{h m s} .14	16 41 44 ^{o ' ' "} .5	65 ^{''} .03	18	16 47 16 ^{h m s} .08	20 5 55 ^{o ' ' "} .4	15 ^{''} .27
19	14 57 8 ^{h m s} .00	16 48 14 ^{o ' ' "} .7	64 ^{''} .23	19	16 49 43 ^{h m s} .79	20 7 27 ^{o ' ' "} .0	14 ^{''} .00
20	14 59 21 ^{h m s} .19	16 54 40 ^{o ' ' "} .1	63 ^{''} .42	20	16 52 11 ^{h m s} .74	20 8 51 ^{o ' ' "} .0	12 ^{''} .73
21	15 1 34 ^{h m s} .70	17 1 0 ^{o ' ' "} .7	62 ^{''} .60	21	16 54 39 ^{h m s} .94	20 10 7 ^{o ' ' "} .4	11 ^{''} .46
22	15 3 48 ^{h m s} .55	17 7 16 ^{o ' ' "} .3	61 ^{''} .77	22	16 57 8 ^{h m s} .38	20 11 16 ^{o ' ' "} .2	10 ^{''} .18
23	15 6 2 ^{h m s} .73	S. 17 13 26 ^{o ' ' "} .9	60 ^{''} .92	23	16 59 37 ^{h m s} .05	S. 20 12 17 ^{o ' ' "} .3	8 ^{''} .89
THURSDAY 14.				SATURDAY 16.			
0	15 8 17 ^{h m s} .23	S. 17 19 32 ^{o ' ' "} .4	60 ^{''} .07	0	17 2 5 ^{h m s} .95	S. 20 13 10 ^{o ' ' "} .6	7 ^{''} .59
1	15 10 32 ^{h m s} .07	17 25 32 ^{o ' ' "} .9	59 ^{''} .21	1	17 4 35 ^{h m s} .08	20 13 56 ^{o ' ' "} .2	6 ^{''} .29
2	15 12 47 ^{h m s} .24	17 31 28 ^{o ' ' "} .1	58 ^{''} .34	2	17 7 4 ^{h m s} .44	20 14 33 ^{o ' ' "} .9	4 ^{''} .99
3	15 15 2 ^{h m s} .74	17 37 18 ^{o ' ' "} .2	57 ^{''} .45	3	17 9 34 ^{h m s} .00	20 15 3 ^{o ' ' "} .8	3 ^{''} .67
4	15 17 18 ^{h m s} .58	17 43 2 ^{o ' ' "} .9	56 ^{''} .56	4	17 12 3 ^{h m s} .78	20 15 25 ^{o ' ' "} .9	2 ^{''} .35
5	15 19 34 ^{h m s} .75	17 48 42 ^{o ' ' "} .3	55 ^{''} .66	5	17 14 33 ^{h m s} .78	20 15 40 ^{o ' ' "} .0	1 ^{''} .02
6	15 21 51 ^{h m s} .24	17 54 16 ^{o ' ' "} .2	54 ^{''} .74	6	17 17 3 ^{h m s} .98	20 15 46 ^{o ' ' "} .1	0 ^{''} .30
7	15 24 8 ^{h m s} .07	17 59 44 ^{o ' ' "} .6	53 ^{''} .82	7	17 19 34 ^{h m s} .36	20 15 44 ^{o ' ' "} .3	1 ^{''} .64
8	15 26 25 ^{h m s} .23	18 5 7 ^{o ' ' "} .6	52 ^{''} .88	8	17 22 4 ^{h m s} .94	20 15 34 ^{o ' ' "} .5	2 ^{''} .98
9	15 28 42 ^{h m s} .72	18 10 24 ^{o ' ' "} .9	51 ^{''} .93	9	17 24 35 ^{h m s} .72	20 15 16 ^{o ' ' "} .6	4 ^{''} .33
10	15 31 0 ^{h m s} .54	18 15 36 ^{o ' ' "} .5	50 ^{''} .98	10	17 27 6 ^{h m s} .67	20 14 50 ^{o ' ' "} .7	5 ^{''} .68
11	15 33 18 ^{h m s} .69	18 20 42 ^{o ' ' "} .4	50 ^{''} .02	11	17 29 37 ^{h m s} .80	20 14 16 ^{o ' ' "} .6	7 ^{''} .03
12	15 35 37 ^{h m s} .17	18 25 42 ^{o ' ' "} .5	49 ^{''} .04	12	17 32 9 ^{h m s} .10	20 13 34 ^{o ' ' "} .4	8 ^{''} .38
13	15 37 55 ^{h m s} .98	18 30 36 ^{o ' ' "} .8	48 ^{''} .05	13	17 34 40 ^{h m s} .56	20 12 44 ^{o ' ' "} .1	9 ^{''} .75
14	15 40 15 ^{h m s} .11	18 35 25 ^{o ' ' "} .1	47 ^{''} .05	14	17 37 12 ^{h m s} .19	20 11 45 ^{o ' ' "} .6	11 ^{''} .12
15	15 42 34 ^{h m s} .57	18 40 7 ^{o ' ' "} .4	46 ^{''} .05	15	17 39 43 ^{h m s} .97	20 10 38 ^{o ' ' "} .9	12 ^{''} .48
16	15 44 54 ^{h m s} .35	18 44 43 ^{o ' ' "} .7	45 ^{''} .03	16	17 42 15 ^{h m s} .90	20 9 24 ^{o ' ' "} .0	13 ^{''} .85
17	15 47 14 ^{h m s} .46	18 49 13 ^{o ' ' "} .9	44 ^{''} .00	17	17 44 47 ^{h m s} .97	20 8 0 ^{o ' ' "} .9	15 ^{''} .22
18	15 49 34 ^{h m s} .88	18 53 37 ^{o ' ' "} .9	42 ^{''} .97	18	17 47 20 ^{h m s} .18	20 6 29 ^{o ' ' "} .6	16 ^{''} .60
19	15 51 55 ^{h m s} .63	18 57 55 ^{o ' ' "} .8	41 ^{''} .92	19	17 49 52 ^{h m s} .52	20 4 50 ^{o ' ' "} .0	17 ^{''} .98
20	15 54 16 ^{h m s} .69	19 2 7 ^{o ' ' "} .3	40 ^{''} .87	20	17 52 24 ^{h m s} .99	20 3 2 ^{o ' ' "} .1	19 ^{''} .36
21	15 56 38 ^{h m s} .07	19 6 12 ^{o ' ' "} .5	39 ^{''} .80	21	17 54 57 ^{h m s} .58	20 1 5 ^{o ' ' "} .9	20 ^{''} .74
22	15 58 59 ^{h m s} .77	19 10 11 ^{o ' ' "} .3	38 ^{''} .72	22	17 57 30 ^{h m s} .29	19 59 1 ^{o ' ' "} .5	22 ^{''} .13
23	16 1 21 ^{h m s} .78	19 14 3 ^{o ' ' "} .6	37 ^{''} .63	23	18 0 3 ^{h m s} .10	19 56 48 ^{o ' ' "} .7	23 ^{''} .51
24	16 3 44 ^{h m s} .09	S. 19 17 49 ^{o ' ' "} .4		24	18 2 36 ^{h m s} .01	S. 19 54 27 ^{o ' ' "} .7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

our.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 17.				TUESDAY 19.			
0	h m s 18 2 36.01	S. 19 54 27.7	24.90	0	h m s 20 5 5.47	S. 15 23 35.4	86.87
1	18 5 9.03	19 51 58.3	26.28	1	20 7 36.69	15 14 54.2	87.96
2	18 7 42.14	19 49 20.6	27.67	2	20 10 7.75	15 6 6.4	89.03
3	18 10 15.33	19 46 34.6	29.06	3	20 12 38.67	14 57 12.2	90.09
4	18 12 48.60	19 43 40.2	30.45	4	20 15 9.44	14 48 11.7	91.14
5	18 15 21.94	19 40 37.6	31.83	5	20 17 40.04	14 39 4.8	92.17
6	18 17 55.36	19 37 26.6	33.22	6	20 20 10.49	14 29 51.8	93.20
7	18 20 28.83	19 34 7.3	34.60	7	20 22 40.79	14 20 32.6	94.21
8	18 23 2.36	19 30 39.7	35.98	8	20 25 10.91	14 11 7.4	95.20
9	18 25 35.94	19 27 3.8	37.37	9	20 27 40.87	14 1 36.2	96.18
10	18 28 9.56	19 23 19.6	38.75	10	20 30 10.66	13 51 59.1	97.15
11	18 30 43.22	19 19 27.1	40.12	11	20 32 40.29	13 42 16.2	98.11
12	18 33 16.91	19 15 26.4	41.50	12	20 35 9.74	13 32 27.5	99.05
13	18 35 50.63	19 11 17.4	42.87	13	20 37 39.02	13 22 33.2	99.97
14	18 38 24.37	19 7 0.2	44.23	14	20 40 8.12	13 12 33.4	100.88
15	18 40 58.12	19 2 34.8	45.60	15	20 42 37.04	13 2 28.1	101.78
16	18 43 31.88	18 58 1.2	46.96	16	20 45 5.78	12 52 17.4	102.66
17	18 46 5.65	18 53 19.5	48.32	17	20 47 34.34	12 42 1.4	103.53
18	18 48 39.41	18 48 29.6	49.68	18	20 50 2.71	12 31 40.3	104.38
19	18 51 13.17	18 43 31.5	51.02	19	20 52 30.91	12 21 14.0	105.22
20	18 53 46.91	18 38 25.4	52.36	20	20 54 58.92	12 10 42.7	106.04
21	18 56 20.63	18 33 11.3	53.70	21	20 57 26.74	12 0 6.4	106.85
22	18 58 54.33	18 27 49.1	55.03	22	20 59 54.38	11 49 25.3	107.65
23	19 1 28.00	S. 18 22 18.9	56.36	23	21 2 21.82	S. 11 38 39.4	108.43
MONDAY 18.				WEDNESDAY 20.			
0	19 4 1.63	S. 18 16 40.8	57.68	0	21 4 49.08	S. 11 27 48.9	109.18
1	19 6 35.22	18 10 54.7	58.99	1	21 7 16.15	11 16 53.8	109.93
2	19 9 8.77	18 5 0.8	60.30	2	21 9 43.03	11 5 54.2	110.66
3	19 11 42.27	17 58 59.0	61.60	3	21 12 9.72	10 54 50.3	111.38
4	19 14 15.71	17 52 49.4	62.90	4	21 14 36.21	10 43 42.0	112.08
5	19 16 49.08	17 46 32.0	64.18	5	21 17 2.52	10 32 29.5	112.76
6	19 19 22.40	17 40 6.9	65.46	6	21 19 28.63	10 21 13.0	113.43
7	19 21 55.64	17 33 34.1	66.73	7	21 21 54.56	10 9 52.4	114.08
8	19 24 28.80	17 26 53.7	68.00	8	21 24 20.29	9 58 27.9	114.72
9	19 27 1.89	17 20 5.7	69.25	9	21 26 45.83	9 46 59.6	115.34
10	19 29 34.88	17 13 10.2	70.49	10	21 29 11.18	9 35 27.5	115.95
11	19 32 7.79	17 6 7.3	71.73	11	21 31 36.33	9 23 51.8	116.54
12	19 34 40.60	16 58 56.9	72.95	12	21 34 1.30	9 12 12.6	117.11
13	19 37 13.31	16 51 39.2	74.17	13	21 36 26.07	9 0 29.9	117.67
14	19 39 45.93	16 44 14.1	75.38	14	21 38 50.66	8 48 43.9	118.21
15	19 42 18.43	16 36 41.8	76.58	15	21 41 15.05	8 36 54.6	118.74
16	19 44 50.82	16 29 2.4	77.77	16	21 43 39.26	8 25 2.2	119.25
17	19 47 23.10	16 21 15.8	78.95	17	21 46 3.28	8 13 6.7	119.74
18	19 49 55.25	16 13 22.1	80.12	18	21 48 27.10	8 1 8.3	120.22
19	19 52 27.29	16 5 21.4	81.27	19	21 50 50.74	7 49 7.0	120.68
20	19 54 59.19	15 57 13.8	82.41	20	21 53 14.20	7 37 3.0	121.12
21	19 57 30.97	15 48 59.3	83.55	21	21 55 37.48	7 24 56.2	121.55
22	20 0 2.61	15 40 38.1	84.67	22	21 58 0.57	7 12 46.9	121.96
23	20 2 34.11	15 32 10.1	85.78	23	22 0 23.47	7 0 35.1	122.36
24	20 5 5.47	S. 15 23 35.4		24	22 2 46.20	S. 6 48 21.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 21.				SATURDAY 23.			
0	22 2 46 ^s 20 ^m	8. 6 48 21 ^s 0 ^m	122 ^s 74 ^m	0	23 53 58 ^s 77 ^m	N. 3 15 24 ^s 9 ^m	123 ^s 27 ^m
1	22 5 8 ^s 75 ^m	6 36 4 ^s 6 ^m	123 ^s 10 ^m	1	23 56 14 ^s 97 ^m	3 27 44 ^s 5 ^m	122 ^s 95 ^m
2	22 7 31 ^s 12 ^m	6 23 45 ^s 9 ^m	123 ^s 45 ^m	2	23 58 31 ^s 09 ^m	3 40 2 ^s 2 ^m	122 ^s 61 ^m
3	22 9 53 ^s 31 ^m	6 11 25 ^s 2 ^m	123 ^s 78 ^m	3	0 0 47 ^s 13 ^m	3 52 17 ^s 9 ^m	122 ^s 25 ^m
4	22 12 15 ^s 32 ^m	5 59 2 ^s 5 ^m	124 ^s 10 ^m	4	0 3 3 ^s 11 ^m	4 4 31 ^s 4 ^m	121 ^s 89 ^m
5	22 14 37 ^s 16 ^m	5 46 37 ^s 9 ^m	124 ^s 40 ^m	5	0 5 19 ^s 02 ^m	4 16 42 ^s 8 ^m	121 ^s 52 ^m
6	22 16 58 ^s 82 ^m	5 34 11 ^s 5 ^m	124 ^s 69 ^m	6	0 7 34 ^s 87 ^m	4 28 51 ^s 9 ^m	121 ^s 13 ^m
7	22 19 20 ^s 32 ^m	5 21 43 ^s 3 ^m	124 ^s 96 ^m	7	0 9 50 ^s 65 ^m	4 40 58 ^s 7 ^m	120 ^s 73 ^m
8	22 21 41 ^s 64 ^m	5 9 13 ^s 6 ^m	125 ^s 21 ^m	8	0 12 6 ^s 37 ^m	4 53 3 ^s 1 ^m	120 ^s 32 ^m
9	22 24 2 ^s 80 ^m	4 56 42 ^s 3 ^m	125 ^s 45 ^m	9	0 14 22 ^s 03 ^m	5 5 5 ^s 0 ^m	119 ^s 90 ^m
10	22 26 23 ^s 79 ^m	4 44 9 ^s 6 ^m	125 ^s 68 ^m	10	0 16 37 ^s 64 ^m	5 17 4 ^s 4 ^m	119 ^s 47 ^m
11	22 28 44 ^s 61 ^m	4 31 35 ^s 5 ^m	125 ^s 89 ^m	11	0 18 53 ^s 19 ^m	5 29 1 ^s 2 ^m	119 ^s 03 ^m
12	22 31 5 ^s 27 ^m	4 19 0 ^s 2 ^m	126 ^s 08 ^m	12	0 21 8 ^s 69 ^m	5 40 55 ^s 4 ^m	118 ^s 57 ^m
13	22 33 25 ^s 77 ^m	4 6 23 ^s 7 ^m	126 ^s 25 ^m	13	0 23 24 ^s 15 ^m	5 52 46 ^s 8 ^m	118 ^s 10 ^m
14	22 35 46 ^s 11 ^m	3 53 46 ^s 2 ^m	126 ^s 41 ^m	14	0 25 39 ^s 55 ^m	6 4 35 ^s 4 ^m	117 ^s 62 ^m
15	22 38 6 ^s 30 ^m	3 41 7 ^s 8 ^m	126 ^s 56 ^m	15	0 27 54 ^s 92 ^m	6 16 21 ^s 2 ^m	117 ^s 14 ^m
16	22 40 26 ^s 33 ^m	3 28 28 ^s 4 ^m	126 ^s 69 ^m	16	0 30 10 ^s 24 ^m	6 28 4 ^s 0 ^m	116 ^s 64 ^m
17	22 42 46 ^s 20 ^m	3 15 48 ^s 3 ^m	126 ^s 80 ^m	17	0 32 25 ^s 52 ^m	6 39 43 ^s 8 ^m	116 ^s 13 ^m
18	22 45 5 ^s 93 ^m	3 3 7 ^s 4 ^m	126 ^s 90 ^m	18	0 34 40 ^s 76 ^m	6 51 20 ^s 6 ^m	115 ^s 61 ^m
19	22 47 25 ^s 50 ^m	2 50 26 ^s 0 ^m	126 ^s 98 ^m	19	0 36 55 ^s 97 ^m	7 2 54 ^s 3 ^m	115 ^s 08 ^m
20	22 49 44 ^s 93 ^m	2 37 44 ^s 1 ^m	127 ^s 05 ^m	20	0 39 11 ^s 14 ^m	7 14 24 ^s 7 ^m	114 ^s 54 ^m
21	22 52 4 ^s 21 ^m	2 25 1 ^s 8 ^m	127 ^s 11 ^m	21	0 41 26 ^s 28 ^m	7 25 52 ^s 0 ^m	113 ^s 99 ^m
22	22 54 23 ^s 36 ^m	2 12 19 ^s 1 ^m	127 ^s 16 ^m	22	0 43 41 ^s 39 ^m	7 37 15 ^s 9 ^m	113 ^s 43 ^m
23	22 56 42 ^s 36 ^m	8. 1 59 36 ^s 1 ^m	127 ^s 18 ^m	23	0 45 56 ^s 48 ^m	N. 7 48 36 ^s 4 ^m	112 ^s 86 ^m
FRIDAY 22.				SUNDAY 24.			
0	22 59 1 ^s 22 ^m	8. 1 46 53 ^s 0 ^m	127 ^s 18 ^m	0	0 48 11 ^s 54 ^m	N. 7 59 53 ^s 6 ^m	112 ^s 27 ^m
1	23 1 19 ^s 95 ^m	1 34 9 ^s 9 ^m	127 ^s 18 ^m	1	0 50 26 ^s 57 ^m	8 11 7 ^s 2 ^m	111 ^s 68 ^m
2	23 3 38 ^s 55 ^m	1 21 26 ^s 8 ^m	127 ^s 16 ^m	2	0 52 41 ^s 58 ^m	8 22 17 ^s 3 ^m	111 ^s 08 ^m
3	23 5 57 ^s 01 ^m	1 8 43 ^s 8 ^m	127 ^s 13 ^m	3	0 54 56 ^s 57 ^m	8 33 23 ^s 8 ^m	110 ^s 47 ^m
4	23 8 15 ^s 35 ^m	0 56 1 ^s 0 ^m	127 ^s 08 ^m	4	0 57 11 ^s 55 ^m	8 44 26 ^s 6 ^m	109 ^s 85 ^m
5	23 10 33 ^s 56 ^m	0 43 18 ^s 5 ^m	127 ^s 02 ^m	5	0 59 26 ^s 51 ^m	8 55 25 ^s 7 ^m	109 ^s 22 ^m
6	23 12 51 ^s 63 ^m	0 30 36 ^s 4 ^m	126 ^s 95 ^m	6	1 1 41 ^s 45 ^m	9 6 21 ^s 0 ^m	108 ^s 58 ^m
7	23 15 9 ^s 61 ^m	0 17 54 ^s 7 ^m	126 ^s 85 ^m	7	1 3 56 ^s 39 ^m	9 17 12 ^s 4 ^m	107 ^s 93 ^m
8	23 17 27 ^s 46 ^m	S. 0 5 13 ^s 6 ^m	126 ^s 75 ^m	8	1 6 11 ^s 31 ^m	9 28 0 ^s 0 ^m	107 ^s 27 ^m
9	23 19 45 ^s 19 ^m	N. 0 7 26 ^s 9 ^m	126 ^s 63 ^m	9	1 8 26 ^s 22 ^m	9 38 43 ^s 7 ^m	106 ^s 60 ^m
10	23 22 2 ^s 80 ^m	0 20 6 ^s 7 ^m	126 ^s 50 ^m	10	1 10 41 ^s 12 ^m	9 49 23 ^s 3 ^m	105 ^s 93 ^m
11	23 24 20 ^s 30 ^m	0 32 45 ^s 8 ^m	126 ^s 35 ^m	11	1 12 56 ^s 02 ^m	9 59 58 ^s 9 ^m	105 ^s 25 ^m
12	23 26 37 ^s 69 ^m	0 45 23 ^s 9 ^m	126 ^s 20 ^m	12	1 15 10 ^s 91 ^m	10 10 30 ^s 4 ^m	104 ^s 55 ^m
13	23 28 54 ^s 98 ^m	0 58 1 ^s 1 ^m	126 ^s 03 ^m	13	1 17 25 ^s 80 ^m	10 20 57 ^s 7 ^m	103 ^s 85 ^m
14	23 31 12 ^s 16 ^m	1 10 37 ^s 3 ^m	125 ^s 85 ^m	14	1 19 40 ^s 69 ^m	10 31 20 ^s 8 ^m	103 ^s 15 ^m
15	23 33 29 ^s 24 ^m	1 23 12 ^s 4 ^m	125 ^s 65 ^m	15	1 21 55 ^s 58 ^m	10 41 39 ^s 7 ^m	102 ^s 43 ^m
16	23 35 46 ^s 22 ^m	1 35 46 ^s 2 ^m	125 ^s 43 ^m	16	1 24 10 ^s 48 ^m	10 51 54 ^s 3 ^m	101 ^s 70 ^m
17	23 38 3 ^s 10 ^m	1 48 18 ^s 8 ^m	125 ^s 21 ^m	17	1 26 25 ^s 37 ^m	11 2 4 ^s 4 ^m	100 ^s 96 ^m
18	23 40 19 ^s 89 ^m	2 0 50 ^s 1 ^m	124 ^s 97 ^m	18	1 28 40 ^s 27 ^m	11 12 10 ^s 2 ^m	100 ^s 22 ^m
19	23 42 36 ^s 59 ^m	2 13 19 ^s 9 ^m	124 ^s 72 ^m	19	1 30 55 ^s 18 ^m	11 22 11 ^s 5 ^m	99 ^s 47 ^m
20	23 44 53 ^s 19 ^m	2 25 48 ^s 2 ^m	124 ^s 46 ^m	20	1 33 10 ^s 09 ^m	11 32 8 ^s 4 ^m	98 ^s 71 ^m
21	23 47 9 ^s 71 ^m	2 38 15 ^s 0 ^m	124 ^s 18 ^m	21	1 35 25 ^s 01 ^m	11 42 0 ^s 6 ^m	97 ^s 94 ^m
22	23 49 26 ^s 15 ^m	2 50 40 ^s 1 ^m	123 ^s 88 ^m	22	1 37 39 ^s 94 ^m	11 51 48 ^s 3 ^m	97 ^s 17 ^m
23	23 51 42 ^s 50 ^m	3 3 3 ^s 4 ^m	123 ^s 58 ^m	23	1 39 54 ^s 88 ^m	12 1 31 ^s 3 ^m	96 ^s 38 ^m
24	23 53 58 ^s 77 ^m	N. 3 15 24 ^s 9 ^m		24	1 42 9 ^s 84 ^m	N. 12 11 9 ^s 5 ^m	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 25.				WEDNESDAY 27.			
0	h m s 1 42 9.84	N. 12 11 9.5	95.59	0	h m s 3 30 29.23	N. 18 9 4.2	50.63
1	1 44 24.80	12 20 43.0	94.79	1	3 32 45.00	18 14 8.0	49.58
2	1 46 39.78	12 30 11.8	93.99	2	3 35 0.77	18 19 5.5	48.53
3	1 48 54.77	12 39 35.7	93.18	3	3 37 16.53	18 23 56.7	47.50
4	1 51 9.78	12 48 54.8	92.36	4	3 39 32.30	18 28 41.7	46.45
5	1 53 24.81	12 58 8.9	91.53	5	3 41 48.06	18 33 20.4	45.39
6	1 55 39.85	13 7 18.1	90.69	6	3 44 3.82	18 37 52.7	44.34
7	1 57 54.90	13 16 22.2	89.85	7	3 46 19.57	18 42 18.7	43.28
8	2 0 9.98	13 25 21.3	89.00	8	3 48 35.31	18 46 38.4	42.21
9	2 2 25.07	13 34 15.4	88.15	9	3 50 51.04	18 50 51.8	41.16
10	2 4 40.19	13 43 4.3	87.28	10	3 53 6.76	18 54 58.8	40.10
11	2 6 55.32	13 51 48.0	86.42	11	3 55 22.47	18 58 59.4	39.04
12	2 9 10.47	14 0 26.5	85.55	12	3 57 38.16	19 2 53.5	37.97
13	2 11 25.64	14 8 59.8	84.67	13	3 59 53.83	19 6 41.3	36.90
14	2 13 40.84	14 17 27.8	83.78	14	4 2 9.49	19 10 22.8	35.84
15	2 15 56.05	14 25 50.5	82.88	15	4 4 25.12	19 13 57.8	34.77
16	2 18 11.29	14 34 7.8	81.98	16	4 6 40.73	19 17 26.4	33.70
17	2 20 26.55	14 42 19.7	81.08	17	4 8 56.31	19 20 48.6	32.62
18	2 22 41.83	14 50 26.2	80.17	18	4 11 11.87	19 24 4.3	31.55
19	2 24 57.14	14 58 27.3	79.26	19	4 13 27.39	19 27 13.6	30.48
20	2 27 12.47	15 6 22.8	78.34	20	4 15 42.89	19 30 16.5	29.40
21	2 29 27.81	15 14 12.8	77.41	21	4 17 58.35	19 33 12.9	28.33
22	2 31 43.18	15 21 57.3	76.47	22	4 20 13.78	19 36 2.9	27.25
23	2 33 58.58	N. 15 29 36.1	75.53	23	4 22 29.18	N. 19 38 46.4	26.18
TUESDAY 26.				THURSDAY 28.			
0	2 36 13.99	N. 15 37 9.3	74.59	0	4 24 44.53	N. 19 41 23.5	25.10
1	2 38 29.43	15 44 36.9	73.65	1	4 26 59.84	19 43 54.1	24.03
2	2 40 44.88	15 51 58.7	72.69	2	4 29 15.11	19 46 18.3	22.95
3	2 43 0.36	15 59 14.9	71.73	3	4 31 30.33	19 48 36.0	21.88
4	2 45 15.86	16 6 25.3	70.77	4	4 33 45.51	19 50 47.3	20.80
5	2 47 31.38	16 13 29.9	69.80	5	4 36 0.63	19 52 52.1	19.73
6	2 49 46.92	16 20 28.7	68.83	6	4 38 15.70	19 54 50.5	18.65
7	2 52 2.48	16 27 21.6	67.85	7	4 40 30.72	19 56 42.4	17.57
8	2 54 18.06	16 34 8.7	66.86	8	4 42 45.68	19 58 27.8	16.50
9	2 56 33.65	16 40 49.8	65.88	9	4 45 0.59	20 0 6.8	15.43
10	2 58 49.27	16 47 25.1	64.88	10	4 47 15.43	20 1 39.4	14.36
11	3 1 4.90	16 53 54.4	63.88	11	4 49 30.21	20 3 5.6	13.29
12	3 3 20.55	17 0 17.7	62.90	12	4 51 44.92	20 4 25.3	12.22
13	3 5 36.21	17 6 35.1	61.90	13	4 53 59.57	20 5 38.6	11.15
14	3 7 51.89	17 12 46.5	60.88	14	4 56 14.14	20 6 45.5	10.08
15	3 10 7.58	17 18 51.8	59.88	15	4 58 28.64	20 7 46.0	9.01
16	3 12 23.28	17 24 51.1	58.86	16	5 0 43.07	20 8 40.1	7.95
17	3 14 39.00	17 30 44.2	57.85	17	5 2 57.42	20 9 27.8	6.88
18	3 16 54.72	17 36 31.3	56.83	18	5 5 11.68	20 10 9.1	5.83
19	3 19 10.46	17 42 12.3	55.80	19	5 7 25.87	20 10 44.1	4.77
20	3 21 26.20	17 47 47.1	54.77	20	5 9 39.97	20 11 12.7	3.70
21	3 23 41.95	17 53 15.7	53.73	21	5 11 53.99	20 11 34.9	2.65
22	3 25 57.71	17 58 38.1	52.70	22	5 14 7.92	20 11 50.8	1.60
23	3 28 13.47	18 3 54.3	51.67	23	5 16 21.75	20 12 0.4	0.55
24	3 30 29.23	N. 18 9 4.2		24	5 18 35.49	N. 20 12 3.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
FRIDAY 29.				SUNDAY 31.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	5 18 35.49	N.20 12 3.7	0.50	0	7 3 4.97	N.18 17 21.9	46.57
1	5 20 49.14	20 12 0.7	1.55	1	7 5 11.76	18 12 42.5	47.41
2	5 23 2.69	20 11 51.4	2.60	2	7 7 18.37	18 7 58.0	48.24
3	5 25 16.13	20 11 35.8	3.65	3	7 9 24.80	18 3 8.6	49.07
4	5 27 29.48	20 11 14.0	4.69	4	7 11 31.06	17 58 14.1	49.89
5	5 29 42.72	20 10 45.8	5.72	5	7 13 37.13	17 53 14.8	50.71
6	5 31 55.85	20 10 11.5	6.76	6	7 15 43.03	17 48 10.6	51.51
7	5 34 8.88	20 9 31.0	7.79	7	7 17 48.75	17 43 1.5	52.32
8	5 36 21.79	20 8 44.2	8.81	8	7 19 54.28	17 37 47.6	53.12
9	5 38 34.59	20 7 51.3	9.84	9	7 21 59.63	17 32 28.9	53.91
10	5 40 47.28	20 6 52.3	10.86	10	7 24 4.81	17 27 5.4	54.69
11	5 42 59.84	20 5 47.1	11.88	11	7 26 9.80	17 21 37.3	55.47
12	5 45 12.29	20 4 35.8	12.90	12	7 28 14.61	17 16 4.5	56.23
13	5 47 24.62	20 3 18.4	13.92	13	7 30 19.24	17 10 27.1	57.00
14	5 49 36.82	20 1 54.9	14.92	14	7 32 23.68	17 4 45.1	57.76
15	5 51 48.89	20 0 25.4	15.93	15	7 34 27.94	16 58 58.5	58.51
16	5 54 0.84	19 58 49.8	16.93	16	7 36 32.02	16 53 7.4	59.26
17	5 56 12.65	19 57 8.2	17.93	17	7 38 35.91	16 47 11.9	60.00
18	5 58 24.34	19 55 20.7	18.92	18	7 40 39.62	16 41 11.9	60.73
19	6 0 35.89	19 53 27.1	19.91	19	7 42 43.14	16 35 7.5	61.46
20	6 2 47.30	19 51 27.7	20.90	20	7 44 46.48	16 28 58.7	62.18
21	6 4 58.58	19 49 22.3	21.88	21	7 46 49.64	16 22 45.6	62.90
22	6 7 9.72	19 47 11.0	22.85	22	7 48 52.62	16 16 28.2	63.61
23	6 9 20.71	N.19 44 53.9	23.82	23	7 50 55.41	N.16 10 6.5	64.31
SATURDAY 30.				MONDAY, AUGUST 1.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	6 11 31.56	N.19 42 31.0	24.80	0	7 52 58.02	N.16 3 40.7	
1	6 13 42.27	19 40 2.2	25.77				
2	6 15 52.83	19 37 27.6	26.72				
3	6 18 3.24	19 34 47.3	27.68				
4	6 20 13.50	19 32 1.2	28.63				
5	6 22 23.62	19 29 9.5	29.58				
6	6 24 33.57	19 26 12.0	30.52				
7	6 26 43.38	19 23 8.9	31.45				
8	6 28 53.02	19 20 0.2	32.38				
9	6 31 2.51	19 16 45.9	33.30				
10	6 33 11.84	19 13 26.1	34.23				
11	6 35 21.01	19 10 0.7	35.15				
12	6 37 30.01	19 6 29.8	36.06				
13	6 39 38.85	19 2 53.5	36.97				
14	6 41 47.53	18 59 11.7	37.87				
15	6 43 56.04	18 55 24.5	38.77				
16	6 46 4.38	18 51 31.9	39.65				
17	6 48 12.56	18 47 34.0	40.54				
18	6 50 20.56	18 43 30.8	41.41				
19	6 52 28.39	18 39 22.3	42.29				
20	6 54 36.06	18 35 8.6	43.16				
21	6 56 43.55	18 30 49.6	44.02				
22	6 58 50.86	18 26 25.5	44.87				
23	7 0 58.01	18 21 56.3	45.73				
24	7 3 4.97	N.18 17 21.9					

PHASES OF THE MOON.

	d	h	m
● New Moon	-	-	3 12 23.9
☾ First Quarter	-	-	11 15 51.0
○ Full Moon	-	-	18 18 35.7
☾ Last Quarter	-	-	25 8 45.9

	d	h
☾ Apogee - - - - -	7	20
☾ Perigee - - - - -	20	2

MEAN TIME.
LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
6	SUN W.	28 15 27 3444	29 36 54 3445	30 58 20 3447	32 19 43 3448				
	Saturn E.	59 44 49 3070	58 16 3 3077	56 47 25 3083	55 18 54 3088				
	Spica E.	69 26 9 3031	67 56 35 3036	66 27 7 3041	64 57 45 3046				
	Jupiter E.	95 28 24 3023	93 58 40 3027	92 29 1 3033	90 59 29 3037				
7	SUN W.	39 6 8 3459	40 27 18 3461	41 48 26 3462	43 9 33 3463				
	Saturn E.	47 57 59 3114	46 30 7 3119	45 2 20 3124	43 34 39 3129				
	Spica E.	57 32 13 3065	56 3 21 3067	54 34 31 3070	53 5 45 3073				
	Jupiter E.	83 33 8 3056	82 4 5 3060	80 35 7 3063	79 6 12 3065				
	Antares E.	103 0 18 3092	101 31 59 3096	100 3 45 3098	98 35 33 3100				
8	SUN W.	49 54 48 3465	51 15 51 3466	52 36 53 3465	53 57 56 3463				
	Saturn E.	36 17 36 3150	34 50 27 3155	33 23 24 3159	31 56 26 3165				
	Spica E.	45 42 30 3079	44 13 55 3080	42 45 21 3079	41 16 46 3079				
	Jupiter E.	71 42 14 3072	70 13 30 3073	68 44 48 3073	67 16 5 3073				
	Antares E.	91 15 4 3106	89 47 2 3107	88 19 1 3106	86 50 59 3106				
9	SUN W.	60 43 41 3453	62 4 58 3449	63 26 19 3445	64 47 45 3440				
	Regulus W.	20 40 48 3222	22 6 31 3201	23 32 39 3183	24 59 9 3167				
	Spica E.	33 53 32 3071	32 24 47 3067	30 55 57 3064	29 27 4 3060				
	Jupiter E.	59 52 17 3065	58 23 24 3062	56 54 28 3060	55 25 29 3056				
	Antares E.	79 30 34 3099	78 2 23 3096	76 34 9 3093	75 5 51 3089				
10	SUN W.	71 36 18 3412	72 58 21 3405	74 20 32 3398	75 42 51 3389				
	Regulus W.	32 16 0 3102	33 44 8 3091	35 12 29 3079	36 41 4 3068				
	Jupiter E.	47 59 13 3031	46 29 39 3025	44 59 57 3018	43 30 7 3011				
	Antares E.	67 43 9 3068	66 14 20 3062	64 45 23 3056	63 16 19 3049				
11	SUN W.	82 36 58 3342	84 0 21 3331	85 23 57 3320	86 47 45 3307				
	Regulus W.	44 7 28 3010	45 37 28 2999	47 7 42 2986	48 38 12 2974				
	Jupiter E.	35 58 31 2969	34 27 39 2959	32 56 35 2949	31 25 18 2939				
	Antares E.	55 48 51 3012	54 18 53 3003	52 48 44 2995	51 18 25 2985				
	α Aquilæ E.	106 59 56 3416	105 37 58 3400	104 15 42 3384	102 53 7 3368				
12	SUN W.	93 50 24 3242	95 15 43 3229	96 41 18 3214	98 7 11 3199				
	Regulus W.	56 14 43 2908	57 46 52 2893	59 19 20 2878	60 52 7 2863				
	Antares E.	43 43 55 2938	42 12 25 2929	40 40 43 2919	39 8 48 2903				
	α Aquilæ E.	95 55 40 3290	94 31 17 3275	93 6 36 3260	91 41 38 3245				
13	SUN W.	105 21 16 3118	106 49 4 3101	108 17 13 3083	109 45 43 3065				
	Regulus W.	68 40 56 2785	70 15 44 2769	71 50 53 2751	73 26 25 2734				
	Saturn W.	24 46 37 2882	26 19 19 2854	27 52 37 2829	29 26 27 2804				
	Spica W.	14 42 22 2763	16 17 39 2747	17 53 17 2729	19 29 18 2713				
	Antares E.	31 26 23 2870	29 53 25 2864	28 20 20 2860	26 47 10 2858				
	α Aquilæ E.	84 32 30 3174	83 5 50 3162	81 38 55 3148	80 11 44 3136				
14	SUN W.	117 13 45 2974	118 44 30 2955	120 15 39 2937	121 47 11 2917				
	Regulus W.	81 29 49 2646	83 7 41 2628	84 45 58 2610	86 24 39 2591				
	Saturn W.	37 23 21 2692	39 0 11 2670	40 37 31 2650	42 15 18 2629				
	Spica W.	27 34 59 2626	29 13 18 2608	30 52 2 2590	32 31 10 2572				
	α Aquilæ E.	72 52 13 3081	71 23 40 3072	69 54 56 3063	68 26 1 3056				
	Fomalhaut E.	101 46 10 3110	100 18 12 3087	98 49 46 3064	97 20 52 3043				
15	SUN W.	129 30 54 2824	131 4 51 2805	132 39 13 2788	134 13 57 2769				

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6	Sun W.	33 41 5	3451	35 2 24	3453	36 23 41	3455	37 44 55	3456
	Saturn E.	53 50 30	3094	52 22 13	3099	50 54 2	3105	49 25 58	3109
	Spica E.	63 28 29	3050	61 59 18	3054	60 30 12	3057	59 1 10	3061
	Jupiter E.	89 30 2	3042	88 0 41	3046	86 31 25	3050	85 2 14	3054
7	Sun W.	44 30 38	3465	45 51 41	3465	47 12 44	3466	48 33 46	3466
	Saturn E.	42 7 4	3133	40 39 34	3137	39 12 9	3142	37 44 50	3146
	Spica E.	51 37 2	3075	50 8 22	3076	48 39 43	3078	47 11 6	3079
	Jupiter E.	77 37 20	3067	76 8 30	3069	74 39 43	3071	73 10 58	3072
	Antares E.	97 7 23	3102	95 39 16	3104	94 11 11	3105	92 43 7	3105
8	Sun W.	55 19 1	3462	56 40 7	3460	58 1 16	3458	59 22 27	3455
	Saturn E.	30 29 35	3170	29 2 50	3177	27 36 13	3184	26 9 44	3192
	Spica E.	39 48 10	3078	38 19 34	3076	36 50 55	3075	35 22 15	3073
	Jupiter E.	65 47 22	3072	64 18 39	3070	62 49 53	3069	61 21 6	3068
	Antares E.	85 22 57	3105	83 54 54	3104	82 26 49	3103	80 58 43	3101
9	Sun W.	66 9 16	3436	67 30 52	3431	68 52 34	3425	70 14 22	3418
	Regulus W.	26 25 58	3152	27 53 5	3138	29 20 28	3125	30 48 7	3114
	Spica E.	27 58 6	3056	26 29 3	3051	24 59 54	3046	23 30 38	3041
	Jupiter E.	53 56 25	3052	52 27 16	3047	50 58 1	3042	49 28 41	3036
	Antares E.	73 37 28	3086	72 9 2	3082	70 40 30	3078	69 11 53	3072
10	Sun W.	77 5 20	3380	78 27 59	3372	79 50 48	3363	81 13 47	3353
	Regulus W.	38 9 53	3056	39 38 56	3045	41 8 13	3034	42 37 43	3022
	Jupiter E.	42 0 8	3003	40 29 59	2995	38 59 40	2987	37 29 11	2978
	Antares E.	61 47 7	3042	60 17 46	3035	58 48 17	3028	57 18 39	3020
11	Sun W.	88 11 48	3296	89 36 4	3283	91 0 35	3270	92 25 22	3257
	Regulus W.	50 8 57	2961	51 39 58	2948	53 11 16	2935	54 42 51	2921
	Jupiter E.	29 53 48	2928	28 22 4	2916	26 50 5	2905	25 17 52	2892
	Antares E.	49 47 54	2977	48 17 12	2968	46 46 19	2958	45 15 13	2948
	α Aquilæ E.	101 30 14	3352	100 7 3	3336	98 43 33	3320	97 19 45	3306
12	Sun W.	99 33 22	3183	100 59 51	3167	102 26 40	3151	103 53 48	3134
	Regulus W.	62 25 13	2848	63 58 38	2833	65 32 23	2817	67 6 29	2801
	Antares E.	37 36 41	2901	36 4 23	2891	34 31 53	2883	32 59 13	2876
	α Aquilæ E.	90 16 22	3230	88 50 49	3216	87 24 59	3203	85 58 53	3188
13	Sun W.	111 14 35	3048	112 43 48	3029	114 13 25	3012	115 43 23	2993
	Regulus W.	75 2 19	2717	76 38 37	2700	78 15 17	2682	79 52 21	2664
	Saturn W.	31 0 50	2781	32 35 43	2758	34 11 6	2735	35 46 59	2713
	Spica W.	21 5 40	2696	22 42 25	2679	24 19 33	2662	25 57 4	2644
	Antares E.	25 13 58	2860	23 40 48	2866	22 7 45	2877	20 34 56	2894
	α Aquilæ E.	78 44 18	3124	77 16 37	3112	75 48 42	3101	74 20 34	3091
14	Sun W.	123 19 8	2899	124 51 28	2880	126 24 13	2862	127 57 21	2842
	Regulus W.	88 3 46	2574	89 43 17	2555	91 23 14	2537	93 3 36	2519
	Saturn W.	43 53 34	2608	45 32 18	2588	47 11 30	2567	48 51 10	2547
	Spica W.	34 10 43	2554	35 50 41	2535	37 31 5	2517	39 11 55	2499
	α Aquilæ E.	66 56 58	3051	65 27 48	3046	63 58 32	3042	62 29 11	3040
	Fomalhaut E.	95 51 32	3021	94 21 45	3001	92 51 33	2981	91 20 56	2962
15	Sun W.	135 49 6	2751	137 24 38	2734	139 0 33	2717	140 36 51	2701

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15	Regulus W.	94 44 23	2500	96 25 37	2482	98 7 16	2464	99 49 20	2446
	Saturn W.	50 31 18	2527	52 11 53	2507	53 52 56	2488	55 34 26	2468
	Spica W.	40 53 10	2481	42 34 50	2462	44 16 57	2443	45 59 30	2426
	Jupiter W.	14 58 38	2487	16 40 10	2468	18 22 8	2448	20 4 34	2430
	α Aquilæ E.	60 59 47	3040	59 30 24	3041	58 1 2	3045	56 31 45	3051
	Fomalhaut E.	89 49 56	2943	88 18 32	2926	86 46 46	2909	85 14 39	2893
	α Pegasi E.	107 17 12	2650	105 39 25	2629	104 1 10	2608	102 22 26	2588
16	Saturn W.	64 8 43	2375	65 52 54	2357	67 37 31	2339	69 22 33	2322
	Spica W.	54 38 40	2336	56 23 48	2319	58 9 20	2302	59 55 17	2285
	Jupiter W.	28 43 17	2340	30 28 19	2322	32 13 47	2305	33 59 39	2288
	α Aquilæ E.	49 8 26	3129	47 40 52	3158	46 13 53	3193	44 47 36	3234
	Fomalhaut E.	77 29 18	2828	75 55 26	2818	74 21 21	2809	72 47 5	2802
	α Pegasi E.	94 2 0	2492	92 20 36	2475	90 38 48	2458	88 56 35	2441
17	Saturn W.	78 13 51	2241	80 1 17	2227	81 49 4	2213	83 37 13	2199
	Spica W.	68 51 2	2206	70 39 20	2192	72 27 59	2178	74 17 0	2164
	Jupiter W.	42 55 1	2210	44 43 14	2195	46 31 49	2182	48 20 44	2168
	Antares W.	24 6 51	2364	25 51 18	2330	27 36 33	2300	29 22 32	2274
	Fomalhaut E.	64 54 14	2793	63 19 37	2798	61 45 6	2805	60 10 44	2815
	α Pegasi E.	80 19 59	2369	78 35 39	2356	76 51 1	2344	75 6 6	2334
18	Saturn W.	92 42 47	2139	94 32 46	2129	96 23 1	2120	98 13 29	2111
	Spica W.	83 26 54	2105	85 17 46	2094	87 8 54	2085	89 0 16	2077
	Jupiter W.	57 30 12	2109	59 20 58	2099	61 11 59	2089	63 3 15	2080
	Antares W.	38 21 4	2174	40 10 11	2158	41 59 41	2144	43 49 33	2132
	Fomalhaut E.	52 23 30	2916	50 51 31	2950	49 20 15	2989	47 49 48	3035
	α Pegasi E.	66 18 10	2296	64 32 4	2292	62 45 52	2289	60 59 36	2287
	α Arietis E.	109 22 4	2165	107 32 44	2154	105 43 7	2143	103 53 14	2133
	Mars E.	111 25 2	2310	109 39 17	2299	107 53 16	2288	106 6 59	2279
19	Spica W.	98 20 12	2042	100 12 41	2037	102 5 18	2032	103 58 2	2029
	Jupiter W.	72 22 40	2046	74 15 2	2041	76 7 32	2037	78 0 8	2034
	Antares W.	53 3 8	2084	54 54 32	2077	56 46 7	2071	58 37 51	2066
	Fomalhaut E.	40 35 0	3401	39 12 44	3512	37 52 33	3640	36 34 42	3789
	α Pegasi E.	52 8 33	2306	50 22 42	2316	48 37 6	2328	46 51 48	2344
	α Arietis E.	94 40 28	2096	92 49 23	2092	90 58 11	2087	89 6 52	2084
	Mars E.	97 12 27	2242	95 25 2	2237	93 37 29	2232	91 49 49	2229
20	Jupiter W.	87 24 6	2028	89 16 57	2029	91 9 46	2030	93 2 34	2033
	Antares W.	67 57 57	2054	69 50 7	2054	71 42 17	2055	73 34 25	2057
	α Pegasi E.	38 12 32	2479	36 30 50	2522	34 50 8	2573	33 10 36	2634
	α Arietis E.	79 49 24	2079	77 57 53	2081	76 6 25	2083	74 15 0	2086
	Mars E.	82 50 28	2221	81 2 31	2222	79 14 36	2223	77 26 42	2225
	Aldebaran E.	112 58 6	2032	111 5 22	2033	109 12 39	2034	107 19 58	2036
21	Jupiter W.	102 25 15	2053	104 17 26	2060	106 9 27	2067	108 1 17	2074
	Antares W.	82 54 8	2076	84 45 44	2081	86 37 12	2088	88 28 30	2096
	α Aquilæ W.	37 46 44	3318	39 10 35	3225	40 36 15	3144	42 3 31	3075
	α Arietis E.	64 59 38	2116	63 9 3	2124	61 18 40	2133	59 28 31	2143
	Mars E.	68 28 25	2246	66 41 6	2253	64 53 57	2260	63 6 58	2267
	Aldebaran E.	97 57 40	2056	96 5 33	2062	94 13 35	2069	92 21 48	2076

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15	Regulus W.	101 31 50	2428	103 14 45	2410	104 58 6	2392	106 41 52	2375
	Saturn W.	57 16 24	2450	58 58 48	2430	60 41 40	2412	62 24 58	2393
	Spica W.	47 42 28	2408	49 25 52	2389	51 9 43	2371	52 53 59	2354
	Jupiter W.	21 47 26	2411	23 30 45	2393	25 14 29	2375	26 58 40	2357
	α Aquilæ E.	55 2 36	3060	53 33 37	3072	52 4 53	3087	50 36 28	3106
	Fomalhaut E.	83 42 11	2878	82 9 24	2864	80 36 18	2851	79 2 56	2839
	α Pegasi E.	100 43 15	2568	99 3 36	2548	97 23 30	2530	95 42 58	2511
16	Saturn W.	71 8 1	2305	72 53 53	2289	74 40 9	2272	76 26 49	2257
	Spica W.	61 41 38	2268	63 28 24	2252	65 15 34	2237	67 3 6	2221
	Jupiter W.	35 45 56	2272	37 32 37	2256	39 19 42	2240	41 7 10	2225
	α Aquilæ E.	43 22 7	3282	41 57 35	3340	40 34 10	3408	39 12 3	3488
	Fomalhaut E.	71 12 41	2797	69 38 9	2793	68 3 32	2791	66 28 53	2791
	α Pegasi E.	87 13 59	2426	85 31 1	2410	83 47 41	2396	82 4 0	2382
17	Saturn W.	85 25 42	2186	87 14 30	2173	89 3 38	2161	90 53 4	2150
	Spica W.	76 6 21	2151	77 56 2	2139	79 46 1	2127	81 36 19	2116
	Jupiter W.	50 10 0	2155	51 59 35	2142	53 49 30	2131	55 39 42	2119
	Antares W.	31 9 9	2250	32 56 22	2228	34 44 7	2208	36 32 22	2190
	Fomalhaut E.	58 36 35	2828	57 2 43	2843	55 29 11	2863	53 56 5	2887
	α Pegasi E.	73 20 56	2324	71 35 32	2315	69 49 55	2308	68 4 7	2302
18	Saturn W.	100 4 12	2103	101 55 6	2095	103 46 13	2089	105 37 29	2083
	Spica W.	90 51 51	2068	92 43 40	2060	94 35 40	2053	96 27 51	2047
	Jupiter W.	64 54 45	2072	66 46 27	2064	68 38 21	2057	70 30 26	2051
	Antares W.	45 39 43	2120	47 30 11	2109	49 20 56	2100	51 11 56	2092
	Fomalhaut E.	46 20 19	3089	44 51 56	3151	43 24 48	3222	41 59 5	3305
	α Pegasi E.	59 13 18	2287	57 27 0	2289	55 40 45	2293	53 54 35	2298
	α Arietis E.	102 3 6	2124	100 12 44	2116	98 22 10	2109	96 31 24	2102
	Mars E.	104 20 29	2270	102 33 46	2262	100 46 50	2255	98 59 44	2248
19	Spica W.	105 50 51	2026	107 43 44	2024	109 36 40	2023	111 29 38	2023
	Jupiter W.	79 52 50	2032	81 45 35	2029	83 38 24	2028	85 31 14	2027
	Antares W.	60 29 42	2062	62 21 40	2059	64 13 42	2056	66 5 49	2055
	Fomalhaut E.	35 19 29	3962	34 7 12	4164	32 58 12	4402	31 52 53	4683
	α Pegasi E.	45 6 52	2362	43 22 23	2384	41 38 26	2411	39 55 7	2442
	α Arietis E.	87 15 28	2081	85 24 0	2079	83 32 29	2079	81 40 57	2078
	Mars E.	90 2 4	2225	88 14 14	2223	86 26 20	2222	84 38 25	2221
20	Jupiter W.	94 55 17	2035	96 47 56	2039	98 40 29	2043	100 32 56	2048
	Antares W.	75 26 31	2059	77 18 34	2062	79 10 31	2066	81 2 23	2070
	α Pegasi E.	31 32 27	2706	29 55 55	2792	28 21 16	2895	26 48 50	3018
	α Arietis E.	72 23 40	2091	70 32 27	2096	68 41 21	2102	66 50 24	2109
	Mars E.	75 38 52	2228	73 51 6	2232	72 3 26	2236	70 15 51	2241
	Aldebaran E.	105 27 20	2039	103 34 46	2042	101 42 17	2046	99 49 55	2051
21	Jupiter W.	109 52 57	2082	111 44 24	2090	113 35 38	2099	115 26 39	2109
	Antares W.	90 19 36	2103	92 10 31	2111	94 1 13	2120	95 51 41	2130
	α Aquilæ W.	43 32 11	3016	45 2 4	2965	46 33 1	2920	48 4 54	2883
	α Arietis E.	57 38 38	2154	55 49 1	2166	53 59 43	2179	52 10 43	2193
	Mars E.	61 20 10	2275	59 33 34	2284	57 47 11	2293	56 1 1	2303
	Aldebaran E.	90 30 11	2084	88 38 47	2092	86 47 35	2101	84 56 37	2110

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22	Antares W.	97 41 55	2140	99 31 54	2151	101 21 36	2161	103 11 2	2173
	α Aquilæ W.	49 37 35	2851	51 10 57	2823	52 44 55	2800	54 19 23	2782
	α Arietis E.	50 22 5	2207	48 33 48	2223	46 45 55	2240	44 58 27	2259
	Mars E.	54 15 6	2313	52 29 26	2324	50 44 3	2335	48 58 54	2347
	Aldebaran E.	83 5 53	2120	81 15 24	2130	79 25 11	2141	77 35 14	2152
	SUN E.	134 24 40	2432	132 41 51	2441	130 59 15	2451	129 16 53	2462
23	α Aquilæ W.	62 16 34	2731	63 52 33	2727	65 28 37	2726	67 4 42	2727
	Fomalhaut W.	36 53 7	3780	38 8 30	3670	39 25 49	3575	40 44 51	3492
	α Arietis E.	36 8 35	2373	34 24 22	2403	32 40 51	2435	30 58 6	2471
	Mars E.	40 17 41	2412	38 34 23	2426	36 51 26	2440	35 8 49	2455
	Aldebaran E.	68 29 55	2213	66 41 47	2227	64 54 0	2240	63 6 32	2254
	SUN E.	120 49 5	2523	119 8 24	2536	117 28 1	2549	115 47 56	2564
24	α Aquilæ W.	75 4 19	2750	76 39 53	2758	78 15 16	2767	79 50 27	2777
	Fomalhaut W.	47 39 14	3225	49 4 54	3192	50 31 13	3164	51 58 6	3139
	α Pegasi W.	27 44 58	3111	29 12 54	3042	30 42 15	2986	32 12 45	2941
	Mars E.	26 41 6	2535	25 0 41	2551	23 20 39	2569	21 41 2	2588
	Aldebaran E.	54 14 27	2327	52 29 7	2341	50 44 7	2357	48 59 30	2372
	SUN E.	107 32 30	2637	105 54 25	2652	104 16 41	2668	102 39 18	2683
25	α Aquilæ W.	87 42 50	2838	89 16 29	2852	90 49 50	2866	92 22 52	2882
	Fomalhaut W.	59 18 20	3069	60 47 8	3062	62 16 4	3058	63 45 5	3055
	α Pegasi W.	39 56 19	2819	41 30 22	2808	43 4 39	2800	44 39 7	2795
	Aldebaran E.	40 21 56	2450	38 39 33	2466	36 57 32	2482	35 15 53	2499
	SUN E.	94 37 31	2761	93 2 12	2776	91 27 13	2791	89 52 34	2807
26	α Aquilæ W.	100 2 53	2967	101 33 47	2985	103 4 18	3005	104 34 24	3025
	Fomalhaut W.	71 10 32	3060	72 39 31	3064	74 8 24	3069	75 37 11	3076
	α Pegasi W.	52 32 26	2793	54 7 3	2796	55 41 36	2801	57 16 3	2805
	Aldebaran E.	26 53 34	2586	25 14 20	2605	23 35 31	2626	21 57 11	2648
	SUN E.	82 4 20	2883	80 31 40	2899	78 59 20	2913	77 27 17	2927
27	α Aquilæ W.	111 58 29	3135	113 25 56	3160	114 52 53	3186	116 19 19	3212
	Fomalhaut W.	82 58 57	3115	84 26 48	3125	85 54 27	3135	87 21 54	3146
	α Pegasi W.	65 6 27	2838	66 40 5	2846	68 13 33	2854	69 46 51	2862
	α Arietis W.	21 46 28	3056	23 15 32	3017	24 45 24	2988	26 15 52	2966
	SUN E.	69 51 41	2999	68 21 27	3013	66 51 30	3026	65 21 49	3040
28	Fomalhaut W.	94 35 43	3206	96 1 45	3220	97 27 30	3233	98 53 0	3248
	α Pegasi W.	77 30 38	2905	79 2 50	2915	80 34 50	2924	82 6 39	2933
	α Arietis W.	33 53 15	2916	35 25 13	2914	36 57 14	2913	38 29 17	2913
	Mars W.	24 32 3	2979	26 2 42	2989	27 33 8	2999	29 3 22	3009
	SUN E.	57 57 31	3104	56 29 26	3117	55 1 37	3129	53 34 2	3141
29	α Pegasi W.	89 42 48	2979	91 13 27	2988	92 43 55	2998	94 14 10	3007
	α Arietis W.	46 9 3	2927	47 40 48	2930	49 12 29	2935	50 44 4	2939
	Mars W.	36 31 37	3055	38 0 42	3064	39 29 36	3073	40 58 19	3081
	SUN E.	46 19 46	3200	44 53 37	3211	43 27 41	3224	42 2 0	3235
30	α Arietis W.	58 20 27	2965	59 51 24	2970	61 22 14	2976	62 52 57	2981
	Mars W.	48 19 20	3122	49 47 3	3130	51 14 36	3138	52 42 0	3144
	Aldebaran W.	24 48 4	2934	26 19 40	2936	27 51 13	2940	29 22 41	2944
	SUN E.	34 56 58	3294	33 32 39	3306	32 12 8	3319	30 44 46	3332

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22	Antares W.	105 0 10	2185	106 49 0	2197	108 37 32	2210	110 25 45	2223
	α Aquilæ W.	55 54 15	2766	57 29 28	2753	59 4 58	2743	60 40 41	2736
	α Arietis E.	43 11 27	2278	41 24 56	2299	39 38 55	2322	37 53 27	2346
	Mars E.	47 14 3	2359	45 29 30	2372	43 45 15	2385	42 1 18	2398
	Aldebaran E.	75 45 34	2164	73 56 12	2175	72 7 7	2188	70 18 22	2200
	Sun E.	127 34 47	2473	125 52 56	2485	124 11 22	2497	122 30 5	2510
23	α Aquilæ W.	68 40 46	2729	70 16 48	2732	71 52 45	2737	73 28 36	2743
	Fomalhaut W.	42 5 24	3421	43 27 16	3361	44 50 17	3308	46 14 19	3263
	α Arietis E.	29 16 12	2512	27 35 15	2558	25 55 22	2611	24 16 42	2674
	Mars E.	33 26 33	2470	31 44 38	2486	30 3 5	2502	28 21 54	2518
	Aldebaran E.	61 19 25	2268	59 32 39	2283	57 46 14	2297	56 0 10	2311
	Sun E.	114 8 11	2578	112 28 46	2593	110 49 41	2607	109 10 55	2622
24	α Aquilæ W.	81 25 26	2788	83 0 10	2799	84 34 40	2811	86 8 53	2824
	Fomalhaut W.	53 25 28	3119	54 53 14	3103	56 21 20	3089	57 49 43	3078
	α Pegasi W.	33 44 11	2905	35 16 24	2876	36 49 14	2852	38 22 34	2833
	Mars E.	20 1 51	2607	18 23 5	2628	16 44 48	2650	15 7 1	2675
	Aldebaran E.	47 15 15	2387	45 31 22	2403	43 47 51	2418	42 4 42	2434
	Sun E.	101 2 15	2698	99 25 33	2714	97 49 12	2729	96 13 11	2745
25	α Aquilæ W.	93 55 34	2898	95 27 56	2914	96 59 57	2931	98 31 36	2949
	Fomalhaut W.	65 14 10	3053	66 43 17	3053	68 12 24	3054	69 41 30	3057
	α Pegasi W.	46 13 42	2791	47 48 22	2789	49 23 4	2789	50 57 46	2791
	Aldebaran E.	33 34 38	2515	31 53 46	2532	30 13 18	2550	28 33 14	2567
	Sun E.	88 18 15	2823	86 44 17	2838	85 10 39	2853	83 37 20	2868
26	α Aquilæ W.	106 4 6	3046	107 33 22	3067	109 2 12	3090	110 30 34	3112
	Fomalhaut W.	77 5 50	3083	78 34 21	3090	80 2 43	3097	81 30 56	3106
	α Pegasi W.	58 50 24	2811	60 24 38	2818	61 58 43	2824	63 32 40	2831
	Aldebaran E.	20 19 21	2672	18 42 3	2698	17 5 20	2729	15 29 19	2766
	Sun E.	75 55 33	2942	74 44 8	2957	73 53 2	2971	71 22 13	2985
27	α Aquilæ W.	117 45 14	3248	119 10 36	3269	120 35 24	3300	121 59 36	3331
	Fomalhaut W.	88 49 8	3157	90 16 8	3169	91 42 54	3181	93 9 26	3193
	α Pegasi W.	71 19 58	2870	72 52 55	2879	74 25 40	2887	75 58 15	2897
	α Arietis W.	27 46 48	2949	29 18 5	2936	30 49 38	2927	32 21 22	2920
	Sun E.	63 52 26	3052	62 23 18	3066	60 54 27	3078	59 25 51	3091
28	Fomalhaut W.	100 18 12	3263	101 43 7	3279	103 7 43	3294	104 32 1	3311
	α Pegasi W.	83 38 16	2942	85 9 41	2951	86 40 55	2960	88 11 58	2970
	α Arietis W.	40 1 19	2915	41 33 19	2916	43 5 18	2919	44 37 12	2922
	Mars W.	30 33 24	3018	32 3 14	3027	33 32 54	3037	35 2 21	3046
	Sun E.	52 6 42	3153	50 39 37	3165	49 12 46	3177	47 46 9	3188
29	α Pegasi W.	95 44 14	3017	97 14 6	3026	98 43 46	3036	100 13 14	3046
	α Arietis W.	52 15 34	2944	53 46 57	2950	55 18 13	2954	56 49 23	2959
	Mars W.	42 26 52	3090	43 55 14	3098	45 23 26	3106	46 51 28	3114
	Sun E.	40 36 32	3247	39 11 18	3258	37 46 17	3270	36 21 30	3282
30	α Arietis W.	64 23 34	2987	65 54 3	2992	67 24 26	2997	68 54 42	3002
	Mars W.	54 9 16	3152	55 36 22	3159	57 3 20	3166	58 30 10	3173
	Aldebaran W.	30 54 4	2949	32 25 21	2954	33 56 32	2958	35 27 38	2963
	Sun E.	29 21 12	3346	27 57 54	3361	26 34 53	3377	25 12 10	3393

Day of the Month.	AIRY's Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1'45262	0'68879	0'29204	1'50446	82'799
2	1'45728	0'69440	0'29277	1'50446	82'274
3	1'46188	0'70043	0'29350	1'50445	81'743
4	1'46642	0'70684	0'29422	1'50443	81'208
5	1'47090	0'71364	0'29494	1'50440	80'669
6	1'47531	0'72080	0'29565	1'50436	80'125
7	1'47966	0'72828	0'29636	1'50432	79'578
8	1'48395	0'73607	0'29706	1'50427	79'027
9	1'48817	0'74413	0'29776	1'50421	78'472
10	1'49233	0'75244	0'29846	1'50414	77'914
11	1'49644	0'76101	0'29915	1'50407	77'362
12	1'50047	0'76982	0'29984	1'50399	76'787
13	1'50444	0'77883	0'30052	1'50391	76'219
14	1'50835	0'78804	0'30120	1'50383	75'647
15	1'51220	0'79741	0'30187	1'50373	75'073
16	1'51599	0'80693	0'30254	1'50363	74'496
17	1'51972	0'81659	0'30320	1'50352	73'917
18	1'52339	0'82639	0'30385	1'50341	73'335
19	1'52700	0'83629	0'30450	1'50329	72'751
20	1'53054	0'84629	0'30514	1'50317	72'164
21	1'53403	0'85636	0'30578	1'50304	71'576
22	1'53746	0'86648	0'30641	1'50291	70'986
23	1'54083	0'87666	0'30703	1'50277	70'393
24	1'54414	0'88689	0'30765	1'50263	69'799
25	1'54739	0'89715	0'30826	1'50249	69'203
26	1'55059	0'90743	0'30887	1'50234	68'605
27	1'55372	0'91773	0'30947	1'50219	68'007
28	1'55680	0'92803	0'31006	1'50203	67'408
29	1'55982	0'93834	0'31064	1'50187	66'807
30	1'56278	0'94862	0'31122	1'50171	66'205
31	1'56569	0'95888	0'31179	1'50155	65'602
32	1'56854	0'96912	0'31236	1'50139	64'999

Day of the Month.	BASSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.		Mean Equinoctial Time, adding 0°.238545. Days.	From Mean Noon of January 1.	
	At Mean Midnight, Logarithms of							Day of the Year.	Fraction of the Year.*
A	B	C	D						
1	+0.5255	—1.3035	+9.8802	+0.8420	^h ^m ^s 17 17 59.62	101	182	.4983	
2	0.5635	1.3022	9.8821	0.8420	17 14 3.71	102	183	.5010	
3	0.5983	1.3007	9.8840	0.8419	17 10 7.80	103	184	.5038	
4	+0.6305	—1.2990	+9.8858	+0.8418	17 6 11.89	104	185	.5065	
5	0.6603	1.2973	9.8877	0.8417	17 2 15.98	105	186	.5093	
6	0.6880	1.2954	9.8895	0.8415	16 58 20.07	106	187	.5120	
7	+0.7140	—1.2934	+9.8913	+0.8413	16 54 24.15	107	188	.5147	
8	0.7385	1.2912	9.8931	0.8411	16 50 28.24	108	189	.5175	
9	0.7615	1.2890	9.8949	0.8408	16 46 32.33	109	190	.5202	
10	+0.7832	—1.2866	+9.8967	+0.8405	16 42 36.42	110	191	.5229	
11	0.8038	1.2840	9.8984	0.8402	16 38 40.51	111	192	.5257	
12	0.8233	1.2814	9.9001	0.8398	16 34 44.60	112	193	.5284	
13	+0.8419	—1.2785	+9.9018	+0.8394	16 30 48.69	113	194	.5312	
14	0.8596	1.2756	9.9035	0.8390	16 26 52.78	114	195	.5339	
15	0.8764	1.2725	9.9052	0.8386	16 22 56.87	115	196	.5366	
16	+0.8926	—1.2693	+9.9069	+0.8381	16 19 0.96	116	197	.5394	
17	0.9080	1.2659	9.9085	0.8376	16 15 5.05	117	198	.5421	
18	0.9228	1.2623	9.9102	0.8371	16 11 9.14	118	199	.5448	
19	+0.9371	—1.2587	+9.9119	+0.8365	16 7 13.23	119	200	.5476	
20	0.9507	1.2548	9.9133	0.8360	16 3 17.32	120	201	.5503	
21	0.9638	1.2508	9.9149	0.8354	15 59 21.41	121	202	.5531	
22	+0.9764	—1.2467	+9.9164	+0.8347	15 55 25.50	122	203	.5558	
23	0.9886	1.2424	9.9179	0.8341	15 51 29.59	123	204	.5585	
24	1.0002	1.2379	9.9194	0.8335	15 47 33.68	124	205	.5613	
25	+1.0115	—1.2332	+9.9209	+0.8328	15 43 37.77	125	206	.5640	
26	1.0224	1.2284	9.9224	0.8321	15 39 41.86	126	207	.5667	
27	1.0329	1.2234	9.9239	0.8314	15 35 45.95	127	208	.5695	
28	+1.0430	—1.2182	+9.9253	+0.8307	15 31 50.04	128	209	.5722	
29	1.0528	1.2128	9.9267	0.8299	15 27 54.13	129	210	.5750	
30	1.0623	1.2073	9.9281	0.8292	15 23 58.22	130	211	.5777	
31	1.0714	1.2015	9.9295	0.8284	15 20 2.31	131	212	.5804	
32	+1.0802	—1.1955	+9.9309	+0.8276	15 16 6.40	132	213	.5832	

* Add .0011 if Fraction be required for the time t , see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to <u>subt. from Apparent Time.</u>	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
Mon.	1	^h 8 ^m 47 ^s 24.97	9.702	N. 17° 54' 33".3	38.15	^m 6 ^s 59	^m 6 ^s 87	0.154
Tues.	2	8 51 17.52	9.677	17 39 9.0	38.87	6 50	5 56.87	0.179
Wed.	3	8 55 9.45	9.652	17 23 27.6	39.58	6 42	5 52.27	0.205
Thur.	4	8 59 0.79	9.627	17 7 29.2	40.28	6 33	5 47.06	0.230
Frid.	5	9 2 51.51	9.601	16 51 14.2	40.97	6 24	5 41.25	0.255
Sat.	6	9 6 41.62	9.576	16 34 42.9	41.64	6 16	5 34.82	0.280
Sun.	7	9 10 31.14	9.550	16 17 55.6	42.30	6 08	5 27.80	0.305
Mon.	8	9 14 20.05	9.525	16 0 52.6	42.95	5 99	5 20.17	0.330
Tues.	9	9 18 8.36	9.500	15 43 34.2	43.58	5 91	5 11.96	0.355
Wed.	10	9 21 56.09	9.476	15 26 0.8	44.20	5 82	5 3.16	0.379
Thur.	11	9 25 43.22	9.452	15 8 12.6	44.81	5 74	4 53.76	0.403
Frid.	12	9 29 29.78	9.428	14 50 9.9	45.41	5 66	4 43.80	0.427
Sat.	13	9 33 15.78	9.405	14 31 53.1	45.99	5 58	4 33.27	0.450
Sun.	14	9 37 1.21	9.382	14 13 22.5	46.56	5 50	4 22.18	0.473
Mon.	15	9 40 46.09	9.359	13 54 38.4	47.12	5 43	4 10.54	0.496
Tues.	16	9 44 30.44	9.337	13 35 41.0	47.66	5 35	3 58.36	0.518
Wed.	17	9 48 14.25	9.315	13 16 30.7	48.19	5 28	3 45.66	0.540
Thur.	18	9 51 57.56	9.294	12 57 7.8	48.71	5 21	3 32.45	0.561
Frid.	19	9 55 40.37	9.274	12 37 32.5	49.22	5 13	3 18.74	0.581
Sat.	20	9 59 22.71	9.255	12 17 45.0	49.72	5 06	3 4.57	0.600
Sun.	21	10 3 4.61	9.237	11 57 45.8	50.21	4 99	2 49.95	0.618
Mon.	22	10 6 46.08	9.219	11 37 35.1	50.68	4 93	2 34.90	0.636
Tues.	23	10 10 27.11	9.202	11 17 13.2	51.14	4 86	2 19.42	0.653
Wed.	24	10 14 7.74	9.185	10 56 40.4	51.59	4 80	2 3.55	0.670
Thur.	25	10 17 47.96	9.169	10 35 57.1	52.02	4 74	1 47.26	0.686
Frid.	26	10 21 27.81	9.153	10 15 3.7	52.43	4 68	1 30.60	0.702
Sat.	27	10 25 7.30	9.138	9 54 0.4	52.83	4 63	1 13.59	0.717
Sun.	28	10 28 46.42	9.123	9 32 47.6	53.22	4 57	0 56.20	0.731
Mon.	29	10 32 25.20	9.109	9 11 25.6	53.60	4 52	0 38.47	0.745
Tues.	30	10 36 3.65	9.095	8 49 54.8	53.96	4 47	0 20.43	0.759
Wed.	31	10 39 41.78	9.082	8 28 15.5	54.31	4 42	0 2.04	0.772
Thur.	32	10 43 19.61		N. 8 6 28.0		4 38	0 16.63	

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subt. from added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Mon.	1	8 47 24.00	N. 17 54 37.1	15 47.9	6 0.89	8 41 23.11
Tues.	2	8 51 16.56	17 39 12.9	15 48.0	5 56.89	8 45 19.67
Wed.	3	8 55 8.51	17 23 31.5	15 48.2	5 52.29	8 49 16.22
Thur.	4	8 58 59.86	17 7 33.1	15 48.3	5 47.08	8 53 12.78
Frid.	5	9 2 50.60	16 51 18.1	15 48.5	5 41.27	8 57 9.33
Sat.	6	9 6 40.73	16 34 46.8	15 48.6	5 34.85	9 1 5.88
Sun.	7	9 10 30.27	16 17 59.4	15 48.8	5 27.83	9 5 2.44
Mon.	8	9 14 19.20	16 0 56.4	15 48.9	5 20.20	9 8 59.00
Tues.	9	9 18 7.54	15 43 38.0	15 49.1	5 11.99	9 12 55.55
Wed.	10	9 21 55.29	15 26 4.5	15 49.3	5 3.19	9 16 52.10
Thur.	11	9 25 42.45	15 8 16.2	15 49.4	4 53.79	9 20 48.66
Frid.	12	9 29 29.04	14 50 13.5	15 49.6	4 43.83	9 24 45.21
Sat.	13	9 33 15.07	14 31 56.6	15 49.8	4 33.30	9 28 41.77
Sun.	14	9 37 0.53	14 13 25.9	15 50.0	4 22.21	9 32 38.32
Mon.	15	9 40 45.44	13 54 41.7	15 50.1	4 10.57	9 36 34.87
Tues.	16	9 44 29.82	13 35 44.2	15 50.3	3 58.39	9 40 31.43
Wed.	17	9 48 13.67	13 16 33.8	15 50.5	3 45.69	9 44 27.98
Thur.	18	9 51 57.01	12 57 10.7	15 50.7	3 32.48	9 48 24.53
Frid.	19	9 55 39.86	12 37 35.2	15 50.9	3 18.77	9 52 21.09
Sat.	20	9 59 22.24	12 17 47.6	15 51.1	3 4.60	9 56 17.64
Sun.	21	10 3 4.17	11 57 48.2	15 51.3	2 49.98	10 0 14.19
Mon.	22	10 6 45.68	11 37 37.2	15 51.5	2 34.93	10 4 10.75
Tues.	23	10 10 26.75	11 17 15.2	15 51.7	2 19.45	10 8 7.30
Wed.	24	10 14 7.42	10 56 42.2	15 51.9	2 3.57	10 12 3.85
Thur.	25	10 17 47.69	10 35 58.7	15 52.1	1 47.28	10 16 0.41
Frid.	26	10 21 27.58	10 15 5.0	15 52.3	1 30.62	10 19 56.96
Sat.	27	10 25 7.11	9 54 1.5	15 52.5	1 13.60	10 23 53.51
Sun.	28	10 28 46.28	9 32 48.4	15 52.7	0 56.21	10 27 50.07
Mon.	29	10 32 25.10	9 11 26.2	15 53.0	0 38.48	10 31 46.62
Tues.	30	10 36 3.60	8 49 55.1	15 53.2	0 20.43	10 35 43.17
Wed.	31	10 39 41.77	8 28 15.5	15 53.4	0 2.04	10 39 39.73
Thur.	32	10 43 19.65	N. 8 6 27.7	15 53.7	0 16.63	10 43 36.28

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	129 24 32.0	S. 0° 80	0.0063304	14 51.9	14 49.7	54 27.6	54 19.5
2	130 21 59.9	0° 83	0.0062704	14 47.7	14 46.2	54 12.4	54 6.7
3	131 19 28.7	0° 81	0.0062080	14 44.9	14 44.1	54 2.2	53 59.0
4	132 16 58.4	0° 78	0.0061433	14 43.7	14 43.6	53 57.3	53 57.0
5	133 14 29.1	0° 72	0.0060763	14 43.9	14 44.8	53 58.4	54 1.5
6	134 12 0.7	0° 66	0.0060072	14 46.1	14 48.0	54 6.5	54 13.3
7	135 9 33.1	0° 57	0.0059358	14 50.4	14 53.4	54 22.2	54 33.2
8	136 7 6.5	0° 45	0.0058624	14 57.0	15 1.2	54 46.4	55 1.8
9	137 4 40.8	0° 34	0.0057871	15 6.0	15 11.4	55 19.4	55 39.2
10	133 2 16.0	0° 21	0.0057099	15 17.4	15 23.9	56 1.1	56 25.0
11	138 59 52.1	S. 0° 09	0.0056310	15 30.9	15 38.2	56 50.6	57 17.7
12	139 57 29.3	N. 0° 04	0.0055506	15 45.9	15 53.8	57 45.8	58 14.6
13	140 55 7.4	0° 16	0.0054688	16 1.8	16 9.6	58 43.7	59 12.3
14	141 52 46.6	0° 25	0.0053857	16 17.1	16 24.0	59 39.7	60 5.3
15	142 50 26.8	0° 32	0.0053015	16 30.3	16 35.7	60 28.4	60 48.2
16	143 48 8.2	0° 36	0.0052163	16 40.1	16 43.3	61 4.2	61 15.7
17	144 45 50.8	0° 34	0.0051303	16 45.1	16 45.6	61 22.4	61 24.1
18	145 43 34.6	0° 31	0.0050435	16 44.6	16 42.4	61 20.7	61 12.4
19	146 41 19.8	0° 23	0.0049559	16 38.9	16 34.3	60 59.6	60 42.7
20	147 39 6.7	N. 0° 12	0.0048674	16 28.7	16 22.3	60 22.3	59 59.1
21	148 36 55.4	0° 00	0.0047780	16 15.4	16 8.1	59 33.8	59 7.0
22	149 34 45.8	S. 0° 13	0.0046876	16 0.6	15 53.1	58 39.5	58 11.8
23	150 32 38.0	0° 25	0.0045961	15 45.6	15 38.4	57 44.4	57 17.9
24	151 30 32.1	0° 36	0.0045032	15 31.4	15 24.8	56 52.4	56 28.4
25	152 28 28.0	0° 48	0.0044089	15 18.7	15 13.1	56 6.0	55 45.3
26	153 26 25.8	0° 56	0.0043132	15 8.0	15 3.3	55 26.5	55 9.6
27	154 24 25.4	0° 62	0.0042160	14 59.2	14 55.6	54 54.6	54 41.4
28	155 22 26.8	0° 66	0.0041171	14 52.5	14 49.9	54 30.0	54 20.3
29	156 20 30.0	0° 67	0.0040165	14 47.7	14 46.0	54 12.4	54 6.0
30	157 18 34.9	0° 67	0.0039142	14 44.6	14 43.7	54 1.1	53 57.7
31	158 16 41.6	0° 64	0.0038103	14 43.2	14 43.0	53 55.7	53 55.0
32	159 14 49.9	S. 0° 59	0.0037047	14 43.2	14 43.7	53 55.7	53 57.8

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	^d	^h ^m
Mon.	1	117 8 55.6	123 10 53.5	S.4 46 11.5	S.4 53 58.7	28.5	23 55.7
Tues.	2	129 11 21.8	135 10 29.2	4 58 26.7	4 59 35.4	29.5	6
Wed.	3	141 8 24.4	147 5 17.6	4 57 26.1	4 52 1.8	0.9	0 39.6
Thur.	4	153 1 19.7	158 56 43.9	4 43 27.4	4 31 49.1	1.9	1 22.1
Frid.	5	164 51 45.6	170 46 42.2	4 17 14.4	3 59 52.1	2.9	2 4.0
Sat.	6	176 41 54.4	182 37 45.2	3 39 52.3	3 17 25.8	3.9	2 45.6
Sun.	7	188 34 40.9	194 33 10.2	2 52 44.4	2 26 0.9	4.9	3 27.9
Mon.	8	200 33 44.6	206 36 58.4	1 57 29.1	1 27 23.8	5.9	4 11.5
Tues.	9	212 43 27.0	218 53 47.6	S.0 56 1.1	S.0 23 38.2	6.9	4 57.2
Wed.	10	225 8 37.9	231 28 35.7	N.0 9 25.7	N.0 42 49.7	7.9	5 45.5
Thur.	11	237 54 17.4	244 26 16.4	1 16 11.1	1 49 4.6	8.9	6 36.9
Frid.	12	251 5 2.5	257 50 59.3	2 21 2.8	2 51 35.9	9.9	7 31.5
Sat.	13	264 44 22.9	271 45 19.7	3 20 12.0	3 46 17.8	10.9	8 28.6
Sun.	14	278 53 44.6	286 9 19.7	4 9 19.2	4 28 42.5	11.9	9 27.2
Mon.	15	293 31 32.9	300 59 37.9	4 43 56.2	4 54 32.4	12.9	10 26.2
Tues.	16	308 32 34.6	316 9 11.8	5 0 8.5	5 0 29.3	13.9	11 24.5
Wed.	17	323 48 8.2	331 27 57.7	4 55 27.8	4 45 7.1	14.9	12 21.5
Thur.	18	339 7 12.3	346 44 27.4	4 29 39.3	4 9 25.8	15.9	13 17.2
Frid.	19	354 18 24.7	1 47 55.8	3 44 55.6	3 16 43.9	16.9	14 11.8
Sat.	20	9 12 4.5	16 30 7.9	2 45 30.0	2 11 55.2	17.9	15 5.8
Sun.	21	23 41 36.7	30 46 14.7	1 36 41.2	N.1 0 28.1	18.9	15 59.5
Mon.	22	37 43 57.7	44 34 50.9	N.0 23 53.8	S.0 12 27.4	19.9	16 53.1
Tues.	23	51 19 8.7	57 57 11.2	S.0 48 4.2	1 22 28.9	20.9	17 46.3
Wed.	24	64 29 23.3	70 56 13.2	1 55 18.2	2 26 11.3	21.9	18 38.8
Thur.	25	77 18 10.4	83 35 45.5	2 54 50.5	3 21 0.9	22.9	19 30.2
Frid.	26	89 49 28.2	95 59 47.5	3 44 30.0	4 5 7.2	23.9	20 19.9
Sat.	27	102 7 10.6	108 12 2.8	4 22 43.8	4 37 13.1	24.9	21 7.8
Sun.	28	114 14 46.9	120 15 43.8	4 48 29.7	4 56 29.6	25.9	21 53.8
Mon.	29	126 15 12.0	132 13 27.8	5 1 11.0	5 2 32.8	26.9	22 38.1
Tues.	30	138 10 45.7	144 7 18.9	5 0 36.0	4 55 23.0	27.9	23 21.0
Wed.	31	150 3 19.2	155 58 58.1	4 46 57.9	4 35 26.2	28.9	6
Thur.	32	161 54 26.5	167 49 55.8	S.4 20 55.0	S.4 3 33.0	0.2	0 3.1

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 1.				WEDNESDAY 3.			
0	h m s 7 52 58.02	N. 16 3 40.7	65.00	0	h m s 9 27 41.08	N. 9 45 36.3	90.49
1	7 55 0.44	15 57 10.7	65.69	1	9 29 35.73	9 36 33.4	90.86
2	7 57 2.69	15 50 36.5	66.37	2	9 31 30.26	9 27 28.2	91.22
3	7 59 4.75	15 43 58.3	67.05	3	9 33 24.66	9 18 20.8	91.58
4	8 1 6.62	15 37 16.0	67.72	4	9 35 18.93	9 9 11.4	91.93
5	8 3 8.32	15 30 29.7	68.38	5	9 37 13.09	8 59 59.8	92.27
6	8 5 9.83	15 23 39.5	69.03	6	9 39 7.12	8 50 46.1	92.61
7	8 7 11.17	15 16 45.3	69.68	7	9 41 1.04	8 41 30.5	92.94
8	8 9 12.32	15 9 47.2	70.32	8	9 42 54.84	8 32 12.8	93.27
9	8 11 13.29	15 2 45.3	70.95	9	9 44 48.53	8 22 53.2	93.59
10	8 13 14.09	14 55 39.6	71.58	10	9 46 42.11	8 13 31.7	93.90
11	8 15 14.71	14 48 30.1	72.20	11	9 48 35.58	8 4 8.4	94.20
12	8 17 15.14	14 41 16.8	72.82	12	9 50 28.94	7 54 43.2	94.49
13	8 19 15.40	14 33 59.9	73.43	13	9 52 22.20	7 45 16.3	94.78
14	8 21 15.49	14 26 39.3	74.03	14	9 54 15.35	7 35 47.5	95.07
15	8 23 15.40	14 19 15.2	74.62	15	9 56 8.40	7 26 17.1	95.35
16	8 25 15.13	14 11 47.4	75.21	16	9 58 1.35	7 16 45.0	95.62
17	8 27 14.69	14 4 16.2	75.79	17	9 59 54.20	7 7 11.3	95.89
18	8 29 14.08	13 56 41.4	76.36	18	10 1 46.96	6 57 35.9	96.15
19	8 31 13.30	13 49 3.2	76.93	19	10 3 39.63	6 47 59.0	96.41
20	8 33 12.34	13 41 21.6	77.49	20	10 5 32.21	6 38 20.5	96.66
21	8 35 11.22	13 33 36.7	78.05	21	10 7 24.70	6 28 40.6	96.90
22	8 37 9.93	13 25 48.3	78.60	22	10 9 17.10	6 18 59.2	97.13
23	8 39 8.46	N. 13 17 56.7	79.14	23	10 11 9.43	N. 6 9 16.4	97.36
TUESDAY 2.				THURSDAY 4.			
0	8 41 6.83	N. 13 10 1.9	79.67	0	10 13 1.67	N. 5 59 32.3	97.58
1	8 43 5.04	13 2 3.9	80.20	1	10 14 53.84	5 49 46.8	97.80
2	8 45 3.08	12 54 2.7	80.72	2	10 16 45.92	5 40 0.0	98.01
3	8 47 0.96	12 45 58.4	81.23	3	10 18 37.94	5 30 11.9	98.22
4	8 48 58.67	12 37 50.9	81.74	4	10 20 29.89	5 20 22.6	98.42
5	8 50 56.23	12 29 40.5	82.24	5	10 22 21.76	5 10 32.2	98.61
6	8 52 53.63	12 21 27.0	82.74	6	10 24 13.57	5 0 40.5	98.80
7	8 54 50.86	12 13 10.6	83.23	7	10 26 5.31	4 50 47.7	98.98
8	8 56 47.94	12 4 51.2	83.71	8	10 27 57.00	4 40 53.9	99.15
9	8 58 44.86	11 56 29.0	84.18	9	10 29 48.62	4 30 59.0	99.32
10	9 0 41.63	11 48 3.9	84.65	10	10 31 40.19	4 21 3.0	99.48
11	9 2 38.25	11 39 36.0	85.11	11	10 33 31.70	4 11 6.1	99.64
12	9 4 34.71	11 31 5.3	85.56	12	10 35 23.16	4 1 8.3	99.79
13	9 6 31.02	11 22 31.9	86.01	13	10 37 14.57	3 51 9.6	99.93
14	9 8 27.19	11 13 55.9	86.45	14	10 39 5.94	3 41 10.0	100.07
15	9 10 23.21	11 5 17.2	86.88	15	10 40 57.26	3 31 9.6	100.20
16	9 12 19.08	10 56 35.9	87.31	16	10 42 48.54	3 21 8.4	100.33
17	9 14 14.82	10 47 52.0	87.73	17	10 44 39.78	3 11 6.4	100.45
18	9 16 10.41	10 39 5.6	88.15	18	10 46 30.99	3 1 3.7	100.56
19	9 18 5.86	10 30 16.7	88.56	19	10 48 22.16	2 51 0.3	100.67
20	9 20 1.17	10 21 25.4	88.96	20	10 50 13.30	2 40 56.3	100.77
21	9 21 56.35	10 12 31.6	89.35	21	10 52 4.41	2 30 51.7	100.87
22	9 23 51.39	10 3 35.5	89.74	22	10 53 55.50	2 20 46.4	100.96
23	9 25 46.30	9 54 37.0	90.12	23	10 55 46.56	2 10 40.7	101.05
24	9 27 41.08	N. 9 45 36.3		24	10 57 37.60	N. 2 0 34.4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 5.				SUNDAY 7.			
0	10 57 37.60	N. 2 0 34.4	101.12	0	12 26 57.01	S. 6 2 54.4	97.99
1	10 59 28.62	1 50 27.7	101.20	1	12 28 50.43	6 12 42.4	97.78
2	11 1 19.63	1 40 20.5	101.27	2	12 30 43.97	6 22 29.1	97.57
3	11 3 10.62	1 30 12.9	101.33	3	12 32 37.64	6 32 14.6	97.35
4	11 5 1.61	1 20 4.9	101.38	4	12 34 31.43	6 41 58.7	97.11
5	11 6 52.58	1 9 56.6	101.43	5	12 36 25.35	6 51 41.3	96.88
6	11 8 43.55	0 59 48.1	101.47	6	12 38 19.40	7 1 22.6	96.64
7	11 10 34.52	0 49 39.2	101.51	7	12 40 13.59	7 11 2.4	96.39
8	11 12 25.49	0 39 30.2	101.54	8	12 42 7.91	7 20 40.8	96.13
9	11 14 16.47	0 29 20.9	101.57	9	12 44 2.37	7 30 17.5	95.87
10	11 16 7.45	0 19 11.5	101.59	10	12 45 56.98	7 39 52.7	95.60
11	11 17 58.44	N. 0 9 2.0	101.60	11	12 47 51.73	7 49 26.3	95.32
12	11 19 49.44	S. 0 1 7.6	101.64	12	12 49 46.63	7 58 58.2	95.04
13	11 21 40.46	0 11 17.3	101.62	13	12 51 41.68	8 8 28.4	94.75
14	11 23 31.49	0 11 27.0	101.61	14	12 53 36.89	8 17 57.0	94.46
15	11 25 22.54	0 31 36.7	101.60	15	12 55 32.25	8 27 32.7	94.16
16	11 27 13.61	0 41 46.3	101.59	16	12 57 27.78	8 36 48.7	93.85
17	11 29 4.71	0 51 55.8	101.57	17	12 59 23.47	8 46 11.8	93.54
18	11 30 55.84	1 2 5.2	101.54	18	1 1 19.32	8 55 33.0	93.21
19	11 32 47.00	1 12 14.5	101.51	19	1 3 15.35	9 4 52.3	92.89
20	11 34 38.20	1 22 23.5	101.47	20	1 5 11.54	9 14 9.6	92.55
21	11 36 29.43	1 32 32.4	101.43	21	1 7 7.91	9 23 24.9	92.21
22	11 38 20.70	1 42 40.9	101.38	22	1 9 4.46	9 32 38.2	91.86
23	11 40 12.02	S. 1 52 49.2	101.32	23	1 11 1.18	S. 9 41 49.4	91.51
SATURDAY 6.				MONDAY 8.			
0	11 42 3.37	S. 2 2 57.1	101.26	0	13 12 58.09	S. 9 50 58.4	91.15
1	11 43 54.78	2 13 4.7	101.19	1	13 14 53.19	10 0 5.3	90.78
2	11 45 46.23	2 23 11.8	101.12	2	13 16 52.47	10 9 10.0	90.41
3	11 47 37.74	2 33 18.6	101.04	3	13 18 49.94	10 18 12.5	90.03
4	11 49 29.31	2 43 24.8	100.95	4	13 20 47.61	10 27 12.6	89.64
5	11 51 20.94	2 53 30.6	100.86	5	13 22 45.48	10 36 10.5	89.25
6	11 53 12.63	3 3 35.8	100.76	6	13 24 43.54	10 45 6.0	88.84
7	11 55 4.38	3 13 40.3	100.66	7	13 26 41.80	10 53 59.0	88.43
8	11 56 56.21	3 23 44.3	100.55	8	13 28 40.27	11 2 49.6	88.01
9	11 58 48.10	3 33 47.6	100.43	9	13 30 38.95	11 11 37.7	87.59
10	12 0 40.07	3 43 50.2	100.31	10	13 32 37.83	11 20 32.2	87.16
11	12 2 32.12	3 53 52.1	100.19	11	13 34 36.93	11 29 6.2	86.72
12	12 4 24.24	4 3 53.2	100.06	12	13 36 36.24	11 37 46.5	86.27
13	12 6 16.45	4 13 53.6	99.92	13	13 38 35.77	11 46 24.1	85.82
14	12 8 8.74	4 23 53.1	99.78	14	13 40 35.52	11 54 59.1	85.36
15	12 10 1.12	4 33 51.7	99.63	15	13 42 35.49	12 3 31.2	84.89
16	12 11 53.59	4 43 49.5	99.47	16	13 44 35.68	12 12 0.6	84.42
17	12 13 46.16	4 53 46.3	99.30	17	13 46 36.10	12 20 27.1	83.94
18	12 15 38.82	5 3 42.1	99.13	18	13 48 36.75	12 28 50.7	83.44
19	12 17 31.59	5 13 36.9	98.96	19	13 50 37.63	12 37 11.4	82.94
20	12 19 24.46	5 23 30.7	98.78	20	13 52 38.74	12 45 29.0	82.44
21	12 21 17.43	5 33 23.4	98.59	21	13 54 40.09	12 53 43.7	81.93
22	12 23 10.51	5 43 14.9	98.40	22	13 56 41.68	13 1 55.2	81.41
23	12 25 3.70	5 53 5.3	98.20	23	13 58 43.51	13 10 3.7	80.88
24	12 26 57.01	S. 6 2 54.4		24	14 0 45.59	S. 13 18 8.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 1.				WEDNESDAY 3.			
0	h m s 7 52 58 ^o 02	N. 16 3 40 ^o 7	65 ^o 00	0	h m s 9 27 41 ^o 08	N. 9 45 36 ^o 3	90 ^o 49
1	7 55 0 ^o 44	15 57 10 ^o 7	65 ^o 69	1	9 29 35 ^o 73	9 36 33 ^o 4	90 ^o 86
2	7 57 2 ^o 69	15 50 36 ^o 5	66 ^o 37	2	9 31 30 ^o 26	9 27 28 ^o 2	91 ^o 22
3	7 59 4 ^o 75	15 43 58 ^o 3	67 ^o 05	3	9 33 24 ^o 66	9 18 20 ^o 8	91 ^o 58
4	8 1 6 ^o 62	15 37 16 ^o 0	67 ^o 72	4	9 35 18 ^o 93	9 9 11 ^o 4	91 ^o 93
5	8 3 8 ^o 32	15 30 29 ^o 7	68 ^o 38	5	9 37 13 ^o 09	8 59 59 ^o 8	92 ^o 27
6	8 5 9 ^o 83	15 23 39 ^o 5	69 ^o 03	6	9 39 7 ^o 12	8 50 46 ^o 1	92 ^o 61
7	8 7 11 ^o 17	15 16 45 ^o 3	69 ^o 68	7	9 41 1 ^o 04	8 41 30 ^o 5	92 ^o 94
8	8 9 12 ^o 32	15 9 47 ^o 2	70 ^o 32	8	9 42 54 ^o 84	8 32 12 ^o 8	93 ^o 27
9	8 11 13 ^o 29	15 2 45 ^o 3	70 ^o 95	9	9 44 48 ^o 53	8 22 53 ^o 2	93 ^o 59
10	8 13 14 ^o 09	14 55 39 ^o 6	71 ^o 58	10	9 46 42 ^o 11	8 13 31 ^o 7	93 ^o 90
11	8 15 14 ^o 71	14 48 30 ^o 1	72 ^o 20	11	9 48 35 ^o 58	8 4 8 ^o 4	94 ^o 20
12	8 17 15 ^o 14	14 41 16 ^o 8	72 ^o 82	12	9 50 28 ^o 94	7 54 43 ^o 2	94 ^o 49
13	8 19 15 ^o 40	14 33 59 ^o 9	73 ^o 43	13	9 52 22 ^o 40	7 45 16 ^o 3	94 ^o 78
14	8 21 15 ^o 49	14 26 39 ^o 3	74 ^o 03	14	9 54 15 ^o 35	7 35 47 ^o 5	95 ^o 07
15	8 23 15 ^o 40	14 19 15 ^o 2	74 ^o 62	15	9 56 8 ^o 40	7 26 17 ^o 1	95 ^o 35
16	8 25 15 ^o 13	14 11 47 ^o 4	75 ^o 21	16	9 58 1 ^o 35	7 16 45 ^o 0	95 ^o 62
17	8 27 14 ^o 69	14 4 16 ^o 2	75 ^o 79	17	9 59 54 ^o 20	7 7 11 ^o 3	95 ^o 89
18	8 29 14 ^o 08	13 56 41 ^o 4	76 ^o 36	18	10 1 46 ^o 96	6 57 35 ^o 9	96 ^o 15
19	8 31 13 ^o 30	13 49 3 ^o 2	76 ^o 93	19	10 3 39 ^o 63	6 47 59 ^o 0	96 ^o 41
20	8 33 12 ^o 34	13 41 21 ^o 6	77 ^o 49	20	10 5 32 ^o 41	6 38 20 ^o 5	96 ^o 66
21	8 35 11 ^o 22	13 33 36 ^o 7	78 ^o 05	21	10 7 24 ^o 70	6 28 40 ^o 6	96 ^o 90
22	8 37 9 ^o 93	13 25 48 ^o 3	78 ^o 60	22	10 9 17 ^o 10	6 18 59 ^o 2	97 ^o 13
23	8 39 8 ^o 46	N. 13 17 56 ^o 7	79 ^o 14	23	10 11 9 ^o 43	N. 6 9 16 ^o 4	97 ^o 36
TUESDAY 2.				THURSDAY 4.			
0	8 41 6 ^o 83	N. 13 10 1 ^o 9	79 ^o 67	0	10 13 1 ^o 67	N. 5 59 32 ^o 3	97 ^o 58
1	8 43 5 ^o 04	13 2 3 ^o 9	80 ^o 20	1	10 14 53 ^o 84	5 49 46 ^o 8	97 ^o 80
2	8 45 3 ^o 08	12 54 2 ^o 7	80 ^o 72	2	10 16 45 ^o 92	5 40 0 ^o 0	98 ^o 01
3	8 47 0 ^o 96	12 45 58 ^o 4	81 ^o 23	3	10 18 37 ^o 94	5 30 11 ^o 9	98 ^o 22
4	8 48 58 ^o 67	12 37 50 ^o 9	81 ^o 74	4	10 20 29 ^o 89	5 20 22 ^o 6	98 ^o 42
5	8 50 56 ^o 23	12 29 40 ^o 5	82 ^o 24	5	10 22 21 ^o 76	5 10 32 ^o 2	98 ^o 61
6	8 52 53 ^o 63	12 21 27 ^o 0	82 ^o 74	6	10 24 13 ^o 57	5 0 40 ^o 5	98 ^o 80
7	8 54 50 ^o 86	12 13 10 ^o 6	83 ^o 23	7	10 26 5 ^o 31	4 50 47 ^o 7	98 ^o 98
8	8 56 47 ^o 94	12 4 51 ^o 2	83 ^o 71	8	10 27 57 ^o 00	4 40 53 ^o 9	99 ^o 15
9	8 58 44 ^o 86	11 56 29 ^o 0	84 ^o 18	9	10 29 48 ^o 62	4 30 59 ^o 0	99 ^o 32
10	9 0 41 ^o 63	11 48 3 ^o 9	84 ^o 65	10	10 31 40 ^o 19	4 21 3 ^o 0	99 ^o 48
11	9 2 38 ^o 25	11 39 36 ^o 0	85 ^o 11	11	10 33 31 ^o 70	4 11 6 ^o 1	99 ^o 64
12	9 4 34 ^o 71	11 31 5 ^o 3	85 ^o 56	12	10 35 23 ^o 16	4 1 8 ^o 3	99 ^o 79
13	9 6 31 ^o 02	11 22 31 ^o 9	86 ^o 01	13	10 37 14 ^o 57	3 51 9 ^o 6	99 ^o 93
14	9 8 27 ^o 19	11 13 55 ^o 9	86 ^o 45	14	10 39 5 ^o 94	3 41 10 ^o 0	100 ^o 07
15	9 10 23 ^o 21	11 5 17 ^o 2	86 ^o 88	15	10 40 57 ^o 26	3 31 9 ^o 6	100 ^o 20
16	9 12 19 ^o 08	10 56 35 ^o 9	87 ^o 31	16	10 42 48 ^o 54	3 21 8 ^o 4	100 ^o 33
17	9 14 14 ^o 82	10 47 52 ^o 0	87 ^o 73	17	10 44 39 ^o 78	3 11 6 ^o 4	100 ^o 45
18	9 16 10 ^o 41	10 39 5 ^o 6	88 ^o 15	18	10 46 30 ^o 99	3 1 3 ^o 7	100 ^o 56
19	9 18 5 ^o 86	10 30 16 ^o 7	88 ^o 56	19	10 48 22 ^o 16	2 51 0 ^o 3	100 ^o 67
20	9 20 1 ^o 17	10 21 25 ^o 4	88 ^o 96	20	10 50 13 ^o 30	2 40 56 ^o 3	100 ^o 77
21	9 21 56 ^o 35	10 12 31 ^o 6	89 ^o 35	21	10 52 4 ^o 41	2 30 51 ^o 7	100 ^o 87
22	9 23 51 ^o 39	10 3 35 ^o 5	89 ^o 74	22	10 53 55 ^o 50	2 20 46 ^o 4	100 ^o 96
23	9 25 46 ^o 30	9 54 37 ^o 0	90 ^o 12	23	10 55 46 ^o 56	2 10 40 ^o 7	101 ^o 05
24	9 27 41 ^o 08	N. 9 45 36 ^o 3		24	10 57 37 ^o 60	N. 2 0 34 ^o 4	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. for
FRIDAY 5.				SUNDAY 7.			
0	h m s	N. 2 0 34.4	101.12	0	h m s	S. 6 2 54.4	97
1	10 57 37.60	1 50 27.7	101.20	1	12 26 57.01	6 12 42.4	97
2	10 59 28.62	1 40 20.5	101.27	2	12 28 50.43	6 22 29.1	97
3	11 1 19.63	1 30 12.9	101.33	3	12 30 43.97	6 32 14.6	97
4	11 3 10.62	1 20 4.9	101.38	4	12 32 37.64	6 41 58.7	97
5	11 5 1.61	1 9 56.6	101.43	5	12 34 31.43	6 51 41.3	96
6	11 6 52.58	0 59 48.1	101.47	6	12 36 25.35	7 1 22.6	96
7	11 8 43.55	0 49 39.2	101.51	7	12 38 19.40	7 11 2.4	96
8	11 10 34.52	0 39 30.2	101.54	8	12 40 13.59	7 20 40.8	96
9	11 12 25.49	0 29 20.9	101.57	9	12 42 7.91	7 30 17.5	95
10	11 14 16.47	0 19 11.5	101.59	10	12 44 2.37	7 39 52.7	95
11	11 16 7.45	0 9 2.0	101.60	11	12 45 56.98	7 49 26.3	95
12	11 17 58.44	S. 0 1 7.6	101.61	12	12 47 51.73	7 58 58.2	95
13	11 19 49.44	0 11 17.3	101.62	13	12 49 46.63	8 8 28.4	94
14	11 21 40.46	0 21 27.0	101.61	14	12 51 41.68	8 17 57.0	94
15	11 23 31.49	0 31 36.7	101.60	15	12 53 36.89	8 27 23.7	94
16	11 25 22.54	0 41 46.3	101.59	16	12 55 32.25	8 36 48.7	93
17	11 27 13.61	0 51 55.8	101.57	17	12 57 27.78	8 46 11.8	93
18	11 29 4.71	1 2 5.2	101.54	18	12 59 23.47	8 55 33.0	93
19	11 30 55.84	1 12 14.5	101.51	19	13 1 19.32	9 4 52.3	92
20	11 32 47.00	1 22 23.5	101.47	20	13 3 15.35	9 14 9.6	92
21	11 34 38.20	1 32 32.4	101.43	21	13 5 11.54	9 23 24.9	92
22	11 36 29.43	1 42 40.9	101.38	22	13 7 7.91	9 32 38.2	91
23	11 38 20.70	S. 1 52 49.2	101.32	23	13 9 4.46	S. 9 41 49.4	91
24	11 40 12.02			24	13 11 1.18		
SATURDAY 6.				MONDAY 8.			
0	h m s	S. 2 2 57.1	101.26	0	h m s	S. 9 50 58.4	91
1	11 42 3.37	2 13 4.7	101.19	1	13 12 58.09	10 0 5.3	90
2	11 43 54.78	2 23 11.8	101.12	2	13 14 55.19	10 9 10.0	90
3	11 45 46.23	2 33 18.6	101.04	3	13 16 52.47	10 18 12.5	90
4	11 47 37.74	2 43 24.8	100.95	4	13 18 49.94	10 27 12.6	89
5	11 49 29.31	2 53 30.6	100.86	5	13 20 47.61	10 36 10.5	89
6	11 51 20.94	3 3 35.8	100.76	6	13 22 45.48	10 45 6.0	88
7	11 53 12.63	3 13 40.3	100.66	7	13 24 43.54	10 53 59.0	88
8	11 55 4.38	3 23 44.3	100.55	8	13 26 41.80	11 2 49.6	88
9	11 56 56.21	3 33 47.6	100.43	9	13 28 40.27	11 11 37.7	87
10	11 58 48.10	3 43 50.2	100.31	10	13 30 38.95	11 20 23.2	87
11	12 0 40.07	3 53 52.1	100.19	11	13 32 37.83	11 29 6.2	86
12	12 2 32.12	4 3 53.2	100.06	12	13 34 36.93	11 37 46.5	86
13	12 4 24.24	4 13 53.6	99.92	13	13 36 36.24	11 46 24.1	85
14	12 6 16.45	4 23 53.1	99.78	14	13 38 35.77	11 54 59.1	85
15	12 8 8.74	4 33 51.7	99.63	15	13 40 35.52	12 3 31.2	84
16	12 10 1.12	4 43 49.5	99.47	16	13 42 35.49	12 12 0.6	84
17	12 11 53.59	4 53 46.3	99.30	17	13 44 35.68	12 20 27.1	83
18	12 13 46.16	5 3 42.1	99.13	18	13 46 36.10	12 28 50.7	83
19	12 15 38.82	5 13 38.9	98.96	19	13 48 36.75	12 37 11.4	82
20	12 17 31.59	5 23 30.7	98.78	20	13 50 37.63	12 45 29.0	82
21	12 19 24.46	5 33 23.4	98.59	21	13 52 38.74	12 53 43.7	81
22	12 21 17.43	5 43 14.9	98.40	22	13 54 40.09	13 1 55.2	81
23	12 23 10.51	5 53 5.3	98.20	23	13 56 41.68	13 10 3.7	80
24	12 25 3.70			24	13 58 43.51		
25	12 26 57.01	S. 6 2 54.4		25	14 0 45.59	S. 13 18 8.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 9.				THURSDAY 11.			
0	14 0 45.59	S. 13 18 8.9	80.34	0	15 43 45.94	S. 18 28 7.0	44.77
1	14 2 47.91	13 26 10.9	79.80	1	15 46 1.84	18 32 35.6	43.81
2	14 4 50.48	13 34 9.7	79.25	2	15 48 18.03	18 36 58.5	42.85
3	14 6 53.30	13 42 5.2	78.69	3	15 50 34.52	18 41 15.6	41.88
4	14 8 56.37	13 49 57.3	78.12	4	15 52 51.31	18 45 26.9	40.90
5	14 10 59.70	13 57 46.0	77.54	5	15 55 8.39	18 49 32.2	39.91
6	14 13 3.28	14 5 31.3	76.96	6	15 57 25.77	18 53 31.7	38.91
7	14 15 7.12	14 13 13.0	76.37	7	15 59 43.44	18 57 25.1	37.90
8	14 17 11.22	14 20 51.2	75.77	8	16 2 1.40	19 1 12.5	36.88
9	14 19 15.58	14 28 25.8	75.16	9	16 4 19.65	19 4 53.8	35.86
10	14 21 20.21	14 35 56.7	74.54	10	16 6 38.20	19 8 29.0	34.83
11	14 23 25.10	14 43 24.0	73.91	11	16 8 57.03	19 11 57.9	33.78
12	14 25 30.26	14 50 47.4	73.28	12	16 11 16.16	19 15 20.6	32.73
13	14 27 35.69	14 58 7.1	72.64	13	16 13 35.57	19 18 37.0	31.67
14	14 29 41.39	15 5 22.9	71.99	14	16 15 55.26	19 21 47.0	30.60
15	14 31 47.36	15 12 34.9	71.33	15	16 18 15.24	19 24 50.7	29.53
16	14 33 53.61	15 19 42.9	70.67	16	16 20 35.49	19 27 47.8	28.45
17	14 36 0.14	15 26 46.9	69.99	17	16 22 56.03	19 30 38.5	27.36
18	14 38 6.94	15 33 46.9	69.31	18	16 25 16.85	19 33 22.7	26.26
19	14 40 14.03	15 40 42.7	68.62	19	16 27 37.94	19 36 0.2	25.15
20	14 42 21.39	15 47 34.4	67.92	20	16 29 59.31	19 38 31.1	24.03
21	14 44 29.04	15 54 22.0	67.21	21	16 32 20.95	19 40 55.3	22.91
22	14 46 36.97	16 1 5.2	66.49	22	16 34 42.85	19 43 12.7	21.78
23	14 48 45.18	S. 16 7 44.2	65.77	23	16 37 5.03	S. 19 45 23.4	20.64
WEDNESDAY 10.				FRIDAY 12.			
0	14 50 53.68	S. 16 14 18.8	65.04	0	16 39 27.48	S. 19 47 27.2	19.49
1	14 53 2.47	16 20 49.0	64.30	1	16 41 50.19	19 49 24.1	18.33
2	14 55 11.55	16 27 14.8	63.54	2	16 44 13.15	19 51 14.1	17.17
3	14 57 20.92	16 33 36.1	62.78	3	16 46 36.38	19 52 57.1	16.00
4	14 59 30.58	16 39 52.8	62.01	4	16 48 59.86	19 54 33.1	14.82
5	15 1 40.53	16 46 4.9	61.24	5	16 51 23.59	19 56 2.1	13.64
6	15 3 50.78	16 52 12.3	60.45	6	16 53 47.58	19 57 23.9	12.45
7	15 6 1.32	16 58 15.0	59.65	7	16 56 11.81	19 58 38.6	11.25
8	15 8 12.15	17 4 12.9	58.85	8	16 58 36.28	19 59 46.1	10.04
9	15 10 23.28	17 10 6.0	58.04	9	17 1 1.00	20 0 46.4	8.83
10	15 12 34.70	17 15 54.3	57.21	10	17 3 25.95	20 1 39.4	7.62
11	15 14 46.42	17 21 37.5	56.38	11	17 5 51.14	20 2 25.1	6.39
12	15 16 58.44	17 27 15.8	55.54	12	17 8 16.57	20 3 3.4	5.16
13	15 19 10.76	17 32 49.1	54.69	13	17 10 42.22	20 3 34.4	3.93
14	15 21 23.37	17 38 17.2	53.83	14	17 13 8.09	20 3 57.9	2.69
15	15 23 36.28	17 43 40.2	52.97	15	17 15 34.19	20 4 14.1	1.44
16	15 25 49.50	17 48 58.0	52.09	16	17 18 0.50	20 4 22.7	0.19
17	15 28 3.01	17 54 10.6	51.21	17	17 20 27.03	20 4 23.8	1.07
18	15 30 16.81	17 59 17.9	50.32	18	17 22 53.77	20 4 17.4	2.34
19	15 32 30.92	18 4 19.8	49.41	19	17 25 20.72	20 4 3.3	3.61
20	15 34 45.33	18 9 16.3	48.50	20	17 27 47.86	20 3 41.7	4.88
21	15 37 0.04	18 14 7.3	47.58	21	17 30 15.21	20 3 12.4	6.16
22	15 39 15.04	18 18 52.8	46.65	22	17 32 42.75	20 2 35.5	7.44
23	15 41 30.34	18 23 32.7	45.72	23	17 35 10.48	20 1 50.9	8.72
24	15 43 45.94	S. 18 28 7.0		24	17 37 38.40	S. 20 0 58.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 13.				MONDAY 15.			
0	h m s 17 37 38.40	S. 20 0 58.5	10.02	0	h m s 19 38 10.75	S. 16 44 21.5	72.6
1	17 40 6.50	19 59 58.4	11.32	1	19 40 42.32	16 37 5.7	73.8
2	17 42 34.78	19 58 50.5	12.62	2	19 43 13.85	16 29 42.5	75.0
3	17 45 3.24	19 57 34.8	13.92	3	19 45 45.34	16 22 12.2	76.2
4	17 47 31.86	19 56 11.3	15.23	4	19 48 16.79	16 14 34.6	77.4
5	17 50 0.66	19 54 39.9	16.54	5	19 50 48.19	16 6 49.8	78.6
6	17 52 29.61	19 53 0.7	17.85	6	19 53 19.54	15 58 57.9	79.8
7	17 54 58.72	19 51 13.6	19.17	7	19 55 50.84	15 50 59.1	80.9
8	17 57 27.98	19 49 18.6	20.48	8	19 58 22.08	15 42 53.2	82.1
9	17 59 57.39	19 47 15.7	21.80	9	20 0 53.26	15 34 40.4	83.2
10	18 2 26.95	19 45 4.9	23.13	10	20 3 24.37	15 26 20.7	84.4
11	18 4 56.64	19 42 46.1	24.45	11	20 5 55.42	15 17 54.2	85.5
12	18 7 26.47	19 40 19.4	25.78	12	20 8 26.39	15 9 20.9	86.6
13	18 9 56.43	19 37 44.7	27.11	13	20 10 57.29	15 0 40.9	87.7
14	18 12 26.52	19 35 2.1	28.44	14	20 13 28.12	14 51 54.4	88.8
15	18 14 56.72	19 32 11.5	29.77	15	20 15 58.86	14 43 1.2	89.9
16	18 17 27.04	19 29 12.9	31.10	16	20 18 29.53	14 34 1.5	91.0
17	18 19 57.48	19 26 6.3	32.43	17	20 21 0.10	14 24 55.4	92.0
18	18 22 28.02	19 22 51.7	33.77	18	20 23 30.59	14 15 43.0	93.1
19	18 24 58.66	19 19 29.1	35.10	19	20 26 1.00	14 6 24.2	94.1
20	18 27 29.40	19 15 58.5	36.43	20	20 28 31.31	13 56 59.2	95.1
21	18 30 0.23	19 12 19.9	37.76	21	20 31 1.52	13 47 28.1	96.2
22	18 32 31.15	19 8 33.3	39.09	22	20 33 31.64	13 37 50.9	97.2
23	18 35 2.15	S. 19 4 38.7	40.42	23	20 36 1.66	S. 13 28 7.7	98.1
SUNDAY 14.				TUESDAY 16.			
0	h m s 18 37 33.23	S. 19 0 36.2	41.75	0	h m s 20 38 31.58	S. 13 18 18.5	99.1
1	18 40 4.39	18 56 25.7	43.08	1	20 41 1.40	13 8 23.5	100.1
2	18 42 35.61	18 52 7.2	44.41	2	20 43 31.11	12 58 22.7	101.0
3	18 45 6.90	18 47 40.8	45.73	3	20 46 0.71	12 48 16.2	102.0
4	18 47 38.24	18 43 6.4	47.05	4	20 48 30.20	12 38 4.1	102.9
5	18 50 9.64	18 38 24.1	48.37	5	20 50 59.59	12 27 46.5	103.8
6	18 52 41.10	18 33 33.8	49.69	6	20 53 28.85	12 17 23.4	104.7
7	18 55 12.60	18 28 35.7	51.01	7	20 55 58.00	12 6 54.9	105.6
8	18 57 44.14	18 23 29.7	52.31	8	20 58 27.04	11 56 21.2	106.5
9	19 0 15.72	18 18 15.8	53.62	9	21 0 55.96	11 45 42.2	107.3
10	19 2 47.33	18 12 54.0	54.93	10	21 3 24.76	11 34 58.1	108.1
11	19 5 18.97	18 7 24.5	56.23	11	21 5 53.44	11 24 9.0	109.0
12	19 7 50.63	18 1 47.1	57.52	12	21 8 21.99	11 13 14.9	109.8
13	19 10 22.31	17 56 2.0	58.81	13	21 10 50.42	11 2 16.0	110.6
14	19 12 54.00	17 50 9.1	60.10	14	21 13 18.73	10 51 12.3	111.3
15	19 15 25.70	17 44 8.5	61.38	15	21 15 46.92	10 40 4.0	112.1
16	19 17 57.41	17 38 0.2	62.66	16	21 18 14.98	10 28 51.0	112.9
17	19 20 29.12	17 31 44.3	63.93	17	21 20 42.91	10 17 33.6	113.6
18	19 23 0.82	17 25 20.8	65.19	18	21 23 10.72	10 6 11.8	114.3
19	19 25 32.52	17 18 49.6	66.45	19	21 25 38.40	9 54 45.7	115.0
20	19 28 4.20	17 12 10.9	67.70	20	21 28 5.95	9 43 15.4	115.7
21	19 30 35.88	17 5 24.8	68.94	21	21 30 33.38	9 31 41.0	116.4
22	19 33 7.53	16 58 31.1	70.18	22	21 33 0.67	9 20 2.5	117.0
23	19 35 39.15	16 51 30.0	71.41	23	21 35 27.84	9 8 20.2	117.7
24	19 38 10.75	S. 16 44 21.5		24	21 37 54.87	S. 8 56 34.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

hour.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
WEDNESDAY 17.				FRIDAY 19.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	21 37 54.87	S. 8 56 34.0	118.32	0	23 33 9.41	N. 1 10 45.0	128.54
1	21 40 21.78	8 44 44.1	118.92	1	23 35 30.91	1 23 36.2	128.35
2	21 42 48.55	8 32 50.6	119.51	2	23 37 52.33	1 36 26.3	128.15
3	21 45 15.20	8 20 53.5	120.08	3	23 40 13.67	1 49 15.2	127.93
4	21 47 41.72	8 8 53.0	120.64	4	23 42 34.93	2 2 2.8	127.69
5	21 50 8.10	7 56 49.2	121.18	5	23 44 56.12	2 14 48.9	127.44
6	21 52 34.36	7 44 42.1	121.70	6	23 47 17.23	2 27 33.6	127.18
7	21 55 0.49	7 32 31.9	122.21	7	23 49 38.27	2 40 16.6	126.90
8	21 57 26.48	7 20 18.7	122.70	8	23 51 59.25	2 52 58.0	126.60
9	21 59 52.35	7 8 2.5	123.17	9	23 54 20.15	3 5 37.6	126.29
10	22 2 18.00	6 55 43.5	123.63	10	23 56 40.98	3 18 15.4	125.97
11	22 4 43.70	6 43 21.7	124.07	11	23 59 1.75	3 30 51.2	125.63
12	22 7 9.18	6 30 57.3	124.49	12	0 1 22.46	3 43 25.0	125.28
13	22 9 34.54	6 18 30.4	124.90	13	0 3 43.10	3 55 56.7	124.91
14	22 11 59.77	6 6 1.0	125.29	14	0 6 3.69	4 8 26.2	124.53
15	22 14 24.87	5 53 29.3	125.66	15	0 8 24.21	4 20 53.4	124.14
16	22 16 49.85	5 40 55.3	126.01	16	0 10 44.68	4 33 18.2	123.73
17	22 19 14.70	5 28 19.2	126.35	17	0 13 5.09	4 45 40.6	123.31
18	22 21 39.43	5 15 41.1	126.67	18	0 15 25.44	4 58 0.4	122.87
19	22 24 4.04	5 3 1.1	126.98	19	0 17 45.75	5 10 17.7	122.42
20	22 26 28.52	4 50 19.2	127.27	20	0 20 6.00	5 22 32.2	121.96
21	22 28 52.88	4 37 35.6	127.54	21	0 22 26.20	5 34 44.0	121.49
22	22 31 17.13	4 24 50.4	127.79	22	0 24 46.35	5 46 52.9	121.00
23	22 33 41.25	S. 4 12 3.6	128.03	23	0 27 6.46	N. 5 58 58.9	120.50
THURSDAY 18.				SATURDAY 20.			
0	22 36 5.25	S. 3 59 15.5	128.25	0	0 29 26.51	N. 6 11 1.9	119.98
1	22 38 29.14	3 46 26.0	128.45	1	0 31 46.53	6 23 1.8	119.46
2	22 40 52.91	3 33 35.3	128.63	2	0 34 6.50	6 34 58.5	118.92
3	22 43 16.57	3 20 43.5	128.80	3	0 36 26.43	6 46 52.0	118.37
4	22 45 40.12	3 7 50.7	128.95	4	0 38 46.32	6 58 42.2	117.80
5	22 48 3.55	2 54 57.0	129.09	5	0 41 6.18	7 10 29.0	117.22
6	22 50 26.88	2 42 2.5	129.21	6	0 43 25.99	7 22 12.3	116.63
7	22 52 50.09	2 29 7.2	129.31	7	0 45 45.77	7 33 52.2	116.03
8	22 55 13.20	2 16 11.3	129.40	8	0 48 5.51	7 45 28.4	115.42
9	22 57 36.20	2 3 14.9	129.47	9	0 50 25.22	7 57 0.9	114.80
10	22 59 59.10	1 50 18.1	129.52	10	0 52 44.90	8 8 29.7	114.16
11	23 2 21.89	1 37 20.9	129.56	11	0 55 4.54	8 19 54.7	113.52
12	23 4 44.57	1 24 23.6	129.57	12	0 57 24.15	8 31 15.7	112.86
13	23 7 7.16	1 11 26.2	129.57	13	0 59 43.73	8 42 32.9	112.19
14	23 9 29.65	0 58 28.8	129.56	14	1 2 3.29	8 53 46.0	111.51
15	23 11 52.04	0 45 31.4	129.53	15	1 4 22.82	9 4 55.0	110.82
16	23 14 14.33	0 32 34.2	129.48	16	1 6 42.33	9 16 0.0	110.12
17	23 16 36.53	0 19 37.4	129.42	17	1 9 1.80	9 27 0.7	109.41
18	23 18 58.64	S. 0 6 40.9	129.34	18	1 11 21.26	9 37 57.1	108.69
19	23 21 20.66	N. 0 6 15.2	129.25	19	1 13 40.69	9 48 49.2	107.96
20	23 23 42.58	0 19 10.7	129.14	20	1 16 0.10	9 59 37.0	107.22
21	23 26 4.42	0 32 5.5	129.01	21	1 18 19.48	10 10 20.2	106.46
22	23 28 26.17	0 44 59.6	128.87	22	1 20 38.85	10 20 59.0	105.70
23	23 30 47.83	0 57 52.8	128.71	23	1 22 58.19	10 31 33.2	104.93
24	23 33 9.41	N. 1 10 45.0		24	1 25 17.52	N. 10 42 2.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
SUNDAY 21.				TUESDAY 23.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	1 25 17.52	N. 10 42 2.8	104.15	0	3 16 25.91	N. 17 19 44.7	58
1	1 27 36.83	10 52 27.7	103.36	1	3 18 44.29	17 25 34.7	57
2	1 29 56.12	11 2 47.8	102.56	2	3 21 2.64	17 31 18.3	56
3	1 32 15.39	11 13 3.2	101.75	3	3 23 20.95	17 36 55.4	55
4	1 34 34.64	11 23 13.7	100.93	4	3 25 39.22	17 42 26.1	54
5	1 36 53.88	11 33 19.3	100.11	5	3 27 57.44	17 47 50.3	52
6	1 39 13.10	11 43 19.9	99.27	6	3 30 15.63	17 53 8.1	51
7	1 41 32.31	11 53 15.5	98.43	7	3 32 33.77	17 58 19.3	50
8	1 43 51.50	12 3 6.1	97.58	8	3 34 51.87	18 3 24.0	49
9	1 46 10.67	12 12 51.6	96.72	9	3 37 9.92	18 8 22.2	48
10	1 48 29.84	12 22 32.0	95.86	10	3 39 27.92	18 13 13.9	47
11	1 50 48.98	12 32 7.1	94.98	11	3 41 45.87	18 17 59.0	46
12	1 53 8.11	12 41 36.9	94.10	12	3 44 3.76	18 22 37.6	45
13	1 55 27.23	12 51 1.5	93.21	13	3 46 21.61	18 27 9.6	44
14	1 57 46.34	13 0 20.7	92.31	14	3 48 39.40	18 31 35.1	43
15	2 0 5.43	13 9 34.5	91.40	15	3 50 57.13	18 35 53.9	42
16	2 2 24.51	13 18 43.0	90.49	16	3 53 14.81	18 40 6.2	40
17	2 4 43.58	13 27 45.9	89.57	17	3 55 32.42	18 44 11.9	39
18	2 7 2.63	13 36 43.3	88.64	18	3 57 49.98	18 48 11.0	38
19	2 9 21.67	13 45 35.2	87.71	19	4 0 7.47	18 52 3.6	37
20	2 11 40.69	13 54 21.4	86.77	20	4 2 24.90	18 55 49.5	36
21	2 13 59.71	14 3 2.1	85.82	21	4 4 42.26	18 59 28.9	35
22	2 16 18.70	14 11 37.0	84.87	22	4 6 59.55	19 3 1.7	34
23	2 18 37.68	N. 14 20 6.2	83.91	23	4 9 16.77	N. 19 6 27.8	33
MONDAY 22.				WEDNESDAY 24.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	2 20 56.65	N. 14 28 29.7	82.94	0	4 11 33.92	N. 19 9 47.4	32
1	2 23 15.60	14 36 47.4	81.97	1	4 13 50.99	19 13 0.4	31
2	2 25 34.54	14 44 59.2	80.99	2	4 16 7.99	19 16 6.8	29
3	2 27 53.46	14 53 5.2	80.01	3	4 18 24.92	19 19 6.6	28
4	2 30 12.36	15 1 5.2	79.03	4	4 20 41.76	19 21 59.8	27
5	2 32 31.24	15 8 59.4	78.03	5	4 22 58.52	19 24 46.5	26
6	2 34 50.11	15 16 47.6	77.03	6	4 25 15.19	19 27 26.5	25
7	2 37 8.96	15 24 29.8	76.03	7	4 27 31.78	19 30 0.0	24
8	2 39 27.79	15 32 5.9	75.02	8	4 29 48.29	19 32 26.9	23
9	2 41 46.61	15 39 36.1	74.01	9	4 32 4.70	19 34 47.2	22
10	2 44 5.40	15 47 0.1	72.99	10	4 34 21.02	19 37 1.0	21
11	2 46 24.17	15 54 18.1	71.97	11	4 36 37.25	19 39 8.2	20
12	2 48 42.92	16 1 29.9	70.94	12	4 38 53.39	19 41 8.9	19
13	2 51 1.65	16 8 35.6	69.91	13	4 41 9.43	19 43 3.1	18
14	2 53 20.35	16 15 35.1	68.88	14	4 43 25.37	19 44 50.7	17
15	2 55 39.04	16 22 28.4	67.84	15	4 45 41.21	19 46 31.8	16
16	2 57 57.69	16 29 15.4	66.79	16	4 47 56.95	19 48 6.4	15
17	3 0 16.32	16 35 56.2	65.75	17	4 50 12.58	19 49 34.5	14
18	3 2 34.92	16 42 30.7	64.70	18	4 52 28.11	19 50 56.2	13
19	3 4 53.50	16 48 58.9	63.64	19	4 54 43.52	19 52 11.3	12
20	3 7 12.05	16 55 20.8	62.59	20	4 56 58.83	19 53 20.0	11
21	3 9 30.56	17 1 36.3	61.53	21	4 59 14.03	19 54 22.3	10
22	3 11 49.05	17 7 45.5	60.46	22	5 1 29.11	19 55 18.1	9
23	3 14 7.50	17 13 48.3	59.40	23	5 3 44.07	19 56 7.5	8
24	3 16 25.91	N. 17 19 44.7		24	5 5 58.91	N. 19 56 50.5	7

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 25.				SATURDAY 27.			
0	^h 5 ^m 5 ^s 58.91	N. 19 56 50.5	6.10	0	^h 6 ^m 51 ^s 1.45	N. 18 32 26.9	40.58
1	5 8 13.64	19 57 27.1	5.04	1	6 53 8.69	18 28 23.5	41.43
2	5 10 28.24	19 57 57.4	3.98	2	6 55 15.75	18 24 14.9	42.28
3	5 12 42.73	19 58 21.3	2.92	3	6 57 22.62	18 20 1.2	43.12
4	5 14 57.08	19 58 38.8	1.87	4	6 59 29.32	18 15 42.4	43.96
5	5 17 11.31	19 58 50.0	0.82	5	7 1 35.83	18 11 18.7	44.79
6	5 19 25.42	19 58 54.9	0.23	6	7 3 42.16	18 6 49.9	45.62
7	5 21 39.39	19 58 53.5	1.27	7	7 5 48.31	18 2 16.1	46.44
8	5 23 53.23	19 58 45.9	2.31	8	7 7 54.28	17 57 37.5	47.26
9	5 26 6.93	19 58 32.0	3.35	9	7 10 0.06	17 52 53.9	48.07
10	5 28 20.50	19 58 11.9	4.39	10	7 12 5.66	17 48 5.5	48.87
11	5 30 33.94	19 57 45.5	5.42	11	7 14 11.08	17 43 12.2	49.67
12	5 32 47.23	19 57 12.9	6.45	12	7 16 16.31	17 38 14.2	50.47
13	5 35 0.39	19 56 34.2	7.48	13	7 18 21.36	17 33 11.4	51.25
14	5 37 13.40	19 55 49.3	8.50	14	7 20 26.23	17 28 3.9	52.03
15	5 39 26.27	19 54 58.3	9.52	15	7 22 30.91	17 22 51.7	52.81
16	5 41 38.99	19 54 1.2	10.53	16	7 24 35.41	17 17 34.8	53.58
17	5 43 51.57	19 52 58.0	11.54	17	7 26 39.73	17 12 13.4	54.34
18	5 46 3.99	19 51 48.8	12.55	18	7 28 43.86	17 6 47.4	55.09
19	5 48 16.27	19 50 33.6	13.55	19	7 30 47.81	17 1 16.8	55.84
20	5 50 28.40	19 49 12.3	14.54	20	7 32 51.58	16 55 41.7	56.59
21	5 52 40.37	19 47 45.0	15.53	21	7 34 55.17	16 50 2.2	57.33
22	5 54 52.19	19 46 11.8	16.52	22	7 36 58.57	16 44 18.2	58.06
23	5 57 3.85	N. 19 44 32.7	17.51	23	7 39 1.80	N. 16 38 29.9	58.79
FRIDAY 26.				SUNDAY 28.			
0	5 59 15.35	N. 19 42 47.6	18.49	0	7 41 4.84	N. 16 32 37.2	59.51
1	6 1 26.70	19 40 56.7	19.46	1	7 43 7.70	16 26 40.2	60.22
2	6 3 37.88	19 38 59.9	20.43	2	7 45 10.39	16 20 38.8	60.93
3	6 5 48.91	19 36 57.3	21.40	3	7 47 12.89	16 14 33.3	61.63
4	6 7 59.77	19 34 48.9	22.36	4	7 49 15.21	16 8 23.5	62.33
5	6 10 10.47	19 32 34.7	23.32	5	7 51 17.36	16 2 9.5	63.02
6	6 12 21.01	19 30 14.8	24.27	6	7 53 19.32	15 55 51.4	63.71
7	6 14 31.38	19 27 49.2	25.22	7	7 55 21.11	15 49 29.1	64.38
8	6 16 41.59	19 25 17.8	26.16	8	7 57 22.72	15 43 2.8	65.05
9	6 18 51.62	19 22 40.8	27.10	9	7 59 24.16	15 36 32.5	65.72
10	6 21 1.49	19 19 58.2	28.04	10	8 1 25.42	15 29 58.2	66.38
11	6 23 11.19	19 17 10.0	28.97	11	8 3 26.50	15 23 20.0	67.03
12	6 25 20.72	19 14 16.2	29.89	12	8 5 27.41	15 16 37.9	67.67
13	6 27 30.08	19 11 16.8	30.81	13	8 7 28.15	15 9 51.9	68.31
14	6 29 39.26	19 8 12.0	31.73	14	8 9 28.71	15 3 2.0	68.95
15	6 31 48.27	19 5 1.6	32.64	15	8 11 29.10	14 56 8.3	69.58
16	6 33 57.11	19 1 45.8	33.54	16	8 13 29.32	14 49 10.8	70.20
17	6 36 5.77	18 58 24.6	34.44	17	8 15 29.37	14 42 9.6	70.81
18	6 38 14.26	18 54 58.0	35.33	18	8 17 29.25	14 35 4.8	71.42
19	6 40 22.57	18 51 26.0	36.22	19	8 19 28.97	14 27 56.2	72.03
20	6 42 30.70	18 47 48.7	37.10	20	8 21 28.52	14 20 44.1	72.62
21	6 44 38.66	18 44 6.1	37.98	21	8 23 27.90	14 13 28.3	73.21
22	6 46 46.44	18 40 18.2	38.85	22	8 25 27.11	14 6 9.1	73.79
23	6 48 54.04	18 36 25.2	39.72	23	8 27 26.16	13 58 46.3	74.37
24	6 51 1.45	N. 18 32 26.9		24	8 29 25.05	N. 13 51 20.0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. for
MONDAY 29.				WEDNESDAY 31.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	8 29 25.05	N. 13 51 20.0	74.94	0	10 1 48.29	N. 6 58 43.5	94.
1	8 31 23.78	13 43 50.3	75.51	1	10 3 41.07	6 49 13.6	95.
2	8 33 22.34	13 36 17.3	76.07	2	10 5 33.76	6 39 42.0	95.
3	8 35 20.75	13 28 40.9	76.62	3	10 7 26.38	6 30 8.9	95.
4	8 37 18.99	13 21 1.2	77.17	4	10 9 18.93	6 20 34.3	96.
5	8 39 17.09	13 13 18.2	77.71	5	10 11 11.41	6 10 58.2	96.
6	8 41 15.02	13 5 32.0	78.24	6	10 13 3.81	6 1 20.6	96.
7	8 43 12.80	12 57 42.5	78.77	7	10 14 56.15	5 51 41.7	96.
8	8 45 10.43	12 49 49.9	79.29	8	10 16 48.42	5 42 1.4	96.
9	8 47 7.91	12 41 54.2	79.80	9	10 18 40.62	5 32 19.7	97.
10	8 49 5.24	12 33 55.4	80.31	10	10 20 32.77	5 22 36.8	97.
11	8 51 2.41	12 25 53.5	80.81	11	10 22 24.86	5 12 52.6	97.
12	8 52 59.45	12 17 48.6	81.31	12	10 24 16.88	5 3 7.2	97.
13	8 54 56.34	12 9 40.8	81.80	13	10 26 8.85	4 53 20.6	97.
14	8 56 53.08	12 1 30.0	82.28	14	10 28 0.78	4 43 32.9	98.
15	8 58 49.67	11 53 16.3	82.76	15	10 29 52.65	4 33 44.1	98.
16	9 0 46.13	11 44 59.7	83.23	16	10 31 44.47	4 23 54.1	98.
17	9 2 42.45	11 36 40.3	83.69	17	10 33 36.25	4 14 3.2	98.
18	9 4 38.63	11 28 18.1	84.15	18	10 35 27.99	4 4 11.2	98.
19	9 6 34.67	11 19 53.2	84.61	19	10 37 19.68	3 54 18.3	98.
20	9 8 30.58	11 11 25.6	85.05	20	10 39 11.34	3 44 24.5	99.
21	9 10 26.35	11 2 55.3	85.49	21	10 41 2.95	3 34 29.7	99.
22	9 12 22.00	10 54 22.3	85.92	22	10 42 54.54	3 24 34.1	99.
23	9 14 17.51	N. 10 45 46.8	86.35	23	10 44 46.09	N. 3 14 37.7	99.
TUESDAY 30.				THURSDAY, SEPT. 1.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	9 16 12.89	N. 10 37 8.7	86.77	0	10 46 37.61	N. 3 4 40.6	
1	9 18 8.15	10 28 28.1	87.18				
2	9 20 3.28	10 19 45.0	87.59				
3	9 21 58.29	10 10 59.5	87.99				
4	9 23 53.18	10 2 11.5	88.39				
5	9 25 47.95	9 53 21.2	88.78				
6	9 27 42.60	9 44 28.5	89.16				
7	9 29 37.14	9 35 33.6	89.54				
8	9 31 31.56	9 26 36.3	89.91				
9	9 33 25.87	9 17 36.9	90.27				
10	9 35 20.06	9 8 35.3	90.63				
11	9 37 14.15	8 59 31.5	90.98				
12	9 39 8.13	8 50 25.6	91.33				
13	9 41 2.01	8 41 17.6	91.67				
14	9 42 55.78	8 32 7.6	92.00				
15	9 44 49.45	8 22 55.6	92.33				
16	9 46 43.03	8 13 41.6	92.65				
17	9 48 36.50	8 4 25.7	92.97				
18	9 50 29.88	7 55 7.9	93.28				
19	9 52 23.17	7 45 48.2	93.58				
20	9 54 16.37	7 36 26.8	93.87				
21	9 56 9.48	7 27 3.5	94.16				
22	9 58 2.50	7 17 38.6	94.45				
23	9 59 55.43	7 8 11.9	94.72				
24	10 1 48.29	N. 6 58 43.5					

PHASES OF THE MOON.

	d	h	m
● New Moon	-	2	2 33.7
☾ First Quarter	-	10	5 57.4
○ Full Moon	-	17	1 36.5
☾ Last Quarter	-	23	18 4.1
● New Moon	-	31	18 7.9

	d	h
☾ Apogee	-	4 8
☾ Perigee	-	17 10
☾ Apogee	-	31 12

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
5	SUN W.	31 52 51	3507	33 13 8	3502	34 33 30	3497	35 53 58	3492
	Spica E.	37 5 52	3079	35 37 17	3078	34 8 41	3078	32 40 4	3077
	Jupiter E.	63 42 50	3102	62 14 43	3102	60 46 36	3101	59 18 28	3100
	Antares E.	82 42 52	3109	81 14 53	3108	79 46 53	3108	78 18 53	3106
6	SUN W.	42 37 33	3469	43 58 32	3463	45 19 37	3458	46 40 48	3453
	Spica E.	25 16 28	3065	23 47 36	3062	22 18 40	3059	20 49 40	3055
	Jupiter E.	51 57 18	3089	50 28 55	3087	49 0 29	3083	47 31 59	3079
	Antares E.	70 58 25	3098	69 30 13	3096	68 1 58	3092	66 33 39	3090
	α Aquilæ E.	120 29 48	3624	119 11 40	3606	117 53 12	3588	116 34 25	3570
7	SUN W.	53 28 21	3421	54 50 14	3414	56 12 15	3407	57 34 24	3398
	Jupiter E.	40 8 11	3056	38 39 7	3050	37 9 56	3044	35 40 38	3037
	Antares E.	59 11 3	3071	57 42 18	3066	56 13 26	3061	54 44 29	3056
	α Aquilæ E.	109 55 54	3492	108 35 21	3479	107 14 34	3465	105 53 30	3452
8	SUN W.	64 27 36	3353	65 50 46	3343	67 14 8	3332	68 37 42	3321
	Jupiter E.	28 11 54	2998	26 41 39	2989	25 11 13	2981	23 40 36	2971
	Antares E.	47 18 6	3028	45 48 28	3022	44 18 42	3016	42 48 49	3010
	α Aquilæ E.	99 4 35	3389	97 42 6	3377	96 19 23	3365	94 56 26	3353
9	SUN W.	75 38 53	3260	77 3 51	3247	78 29 4	3233	79 54 34	3219
	Saturn W.	19 8 24	3057	20 37 26	3027	22 7 5	3000	23 37 18	2975
	Antares E.	35 17 32	2981	33 46 56	2977	32 16 14	2974	30 45 29	2971
	α Aquilæ E.	87 58 25	3297	86 34 10	3286	85 9 42	3276	83 45 2	3265
	Fomalhaut E.	116 43 32	3474	115 22 39	3448	114 1 17	3422	112 39 25	3396
10	SUN W.	87 6 22	3143	88 33 39	3127	90 1 16	3110	91 29 13	3093
	Saturn W.	31 15 42	2867	32 48 43	2847	34 22 10	2828	35 56 1	2809
	Spica W.	23 17 24	2782	24 52 16	2768	26 27 26	2752	28 2 57	2736
	α Aquilæ E.	76 38 43	3217	75 12 54	3208	73 46 54	3200	72 20 45	3192
	Fomalhaut E.	105 43 5	3279	104 18 29	3257	102 53 27	3236	101 28 0	3214
11	SUN W.	98 54 17	3004	100 24 25	2985	101 54 56	2967	103 25 50	2948
	Saturn W.	43 51 32	2714	45 27 54	2694	47 4 42	2675	48 41 55	2656
	Spica W.	36 5 53	2653	37 43 36	2636	39 21 42	2618	41 0 12	2601
	α Aquilæ E.	65 7 57	3164	63 41 5	3162	62 14 10	3161	60 47 14	3160
	Fomalhaut E.	94 14 35	3115	92 46 43	3096	91 18 28	3078	89 49 51	3060
	α Pegasi E.	111 49 15	2837	110 15 35	2816	108 41 28	2795	107 6 53	2774
12	SUN W.	111 6 26	2851	112 39 48	2831	114 13 36	2811	115 47 49	2791
	Saturn W.	56 54 34	2558	58 34 26	2539	60 14 45	2520	61 55 31	2500
	Spica W.	49 18 53	2509	50 59 53	2490	52 41 20	2472	54 23 13	2453
	Jupiter W.	22 11 38	2536	23 52 1	2517	25 32 50	2499	27 14 5	2480
	α Aquilæ E.	53 33 13	3189	52 6 51	3202	50 40 44	3219	49 14 57	3240
	Fomalhaut E.	82 21 32	2979	80 50 53	2965	79 19 57	2951	77 48 43	2939
	α Pegasi E.	99 7 12	2672	97 29 54	2652	95 52 10	2632	94 13 58	2613
13	SUN W.	123 45 21	2694	125 22 9	2675	126 59 22	2657	128 37 0	2638
	Saturn W.	70 26 10	2403	72 9 40	2384	73 53 37	2366	75 38 1	2347
	Spica W.	62 59 20	2359	64 43 54	2341	66 28 54	2322	68 14 22	2304
	Jupiter W.	35 47 1	2385	37 30 57	2367	39 15 19	2348	41 0 8	2330
	Antares W.	18 36 13	2639	20 14 15	2577	21 53 42	2525	23 34 20	2480
	Fomalhaut E.	70 9 1	2891	68 36 31	2886	67 3 54	2882	65 31 11	2879

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
5	SUN W.	37 14 31	3488	38 35 8	3483	39 55 51	3478	41 16 40	3474
	Spica E.	31 11 26	3074	29 42 45	3073	28 14 2	3071	26 45 17	3068
	Jupiter E.	57 50 19	3098	56 22 7	3096	54 53 53	3095	53 25 37	3092
	Antares E.	76 50 51	3105	75 22 48	3104	73 54 43	3101	72 26 35	3100
6	SUN W.	48 2 5	3447	49 23 28	3440	50 44 59	3435	52 6 36	3428
	Spica E.	19 20 35	3051	17 51 25	3046	16 22 9	3042	14 52 48	3036
	Jupiter E.	46 3 24	3075	44 34 44	3071	43 5 59	3066	41 37 8	3061
	Antares E.	65 5 17	3086	63 36 50	3083	62 8 19	3079	60 39 44	3074
	α Aquilæ E.	115 15 18	3554	113 55 53	3537	112 36 10	3522	111 16 10	3507
7	SUN W.	58 56 43	3390	60 19 11	3382	61 41 48	3372	63 4 37	3363
	Jupiter E.	34 11 11	3030	32 41 36	3023	31 11 52	3015	29 41 58	3007
	Antares E.	53 15 26	3051	51 46 16	3046	50 17 0	3039	48 47 36	3034
	α Aquilæ E.	104 32 12	3439	103 10 39	3426	101 48 52	3414	100 26 51	3401
8	SUN W.	70 1 29	3310	71 25 29	3298	72 49 43	3286	74 14 11	3274
	Jupiter E.	22 9 47	2961	20 38 45	2950	19 7 30	2939	17 36 1	2928
	Antares E.	41 18 48	3004	39 48 40	2998	38 18 24	2992	36 48 1	2987
	α Aquilæ E.	93 33 16	3342	92 9 53	3331	90 46 17	3319	89 22 27	3308
9	SUN W.	81 20 20	3204	82 46 24	3190	84 12 45	3175	85 39 24	3159
	Saturn W.	25 8 2	2951	26 39 16	2929	28 10 58	2908	29 43 7	2887
	Antares E.	29 14 40	2970	27 43 49	2971	26 13 0	2974	24 42 15	2981
	α Aquilæ E.	82 20 10	3254	80 55 5	3245	79 29 49	3236	78 4 22	3226
	Fomalhaut E.	111 17 4	3371	109 54 15	3348	108 30 59	3325	107 7 16	3301
10	SUN W.	92 57 31	3076	94 26 10	3059	95 55 10	3040	97 24 33	3023
	Saturn W.	37 30 17	2790	39 4 58	2770	40 40 5	2752	42 15 36	2733
	Spica W.	29 38 49	2720	31 15 2	2704	32 51 37	2687	34 28 34	2671
	α Aquilæ E.	70 54 26	3186	69 28 0	3179	68 1 25	3173	66 34 44	3168
	Fomalhaut E.	100 2 7	3193	98 35 50	3173	97 9 9	3153	95 42 3	3134
11	SUN W.	104 57 8	2928	106 28 51	2909	108 0 58	2890	109 33 29	2870
	Saturn W.	50 19 34	2637	51 57 39	2617	53 36 11	2598	55 15 9	2578
	Spica W.	42 39 6	2583	44 18 25	2564	45 58 9	2546	47 38 18	2528
	α Aquilæ E.	59 20 17	3162	57 53 22	3166	56 26 32	3171	54 59 48	3178
	Fomalhaut E.	88 20 53	3043	86 51 33	3026	85 21 52	3010	83 51 52	2994
	α Pegasi E.	105 31 51	2753	103 56 22	2733	102 20 26	2712	100 44 2	2692
12	SUN W.	117 22 28	2772	118 57 33	2753	120 33 3	2733	122 8 59	2713
	Saturn W.	63 36 44	2481	65 18 24	2461	67 0 32	2442	68 43 7	2422
	Spica W.	56 5 33	2434	57 48 19	2415	59 31 33	2396	61 15 13	2377
	Jupiter W.	28 55 47	2461	30 37 55	2441	32 20 31	2423	34 3 33	2405
	α Aquilæ E.	47 49 35	3265	46 24 43	3296	45 0 26	3332	43 36 52	3374
	Fomalhaut E.	76 17 14	2927	74 45 30	2916	73 13 32	2907	71 41 22	2898
	α Pegasi E.	92 35 21	2593	90 56 17	2574	89 16 47	2556	87 36 51	2538
13	SUN W.	130 15 3	2619	131 53 32	2602	133 32 24	2585	135 11 39	2569
	Saturn W.	77 22 52	2328	79 8 11	2311	80 53 55	2292	82 40 6	2275
	Spica W.	70 0 16	2285	71 46 37	2268	73 33 24	2250	75 20 38	2233
	Jupiter W.	42 45 24	2312	44 31 6	2294	46 17 14	2276	48 3 49	2260
	Antares W.	25 16 1	2441	26 58 38	2405	28 42 6	2372	30 26 21	2343
	Fomalhaut E.	63 58 25	2879	62 25 39	2880	60 52 55	2884	59 20 15	2891

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
13	α Pegasi E.	85 56 30	2520	84 15 44	2502	82 34 34	2485	80 52 59	2468
14	Saturn W.	84 26 42	2258	86 13 44	2241	88 1 11	2224	89 49 3	2208
	Spica W.	77 8 17	2216	78 56 21	2199	80 44 50	2182	82 33 45	2166
	Jupiter W.	49 50 48	2242	51 38 13	2225	53 26 4	2209	55 14 18	2192
	Antares W.	32 11 18	2316	33 56 55	2290	35 43 10	2266	37 30 0	2243
	Fomalhaut E.	57 47 45	2900	56 15 26	2913	54 43 24	2930	53 11 43	2950
	α Pegasi E.	72 19 30	2394	70 35 47	2381	68 51 45	2369	67 7 26	2359
	α Arietis E.	115 34 7	2285	113 47 45	2266	112 0 56	2248	110 13 40	2231
15	Saturn W.	98 54 9	2135	100 44 15	2122	102 34 41	2110	104 25 25	2098
	Spica W.	91 44 6	2093	93 35 16	2080	95 26 46	2067	97 18 36	2056
	Jupiter W.	64 21 20	2120	66 11 49	2106	68 2 39	2094	69 53 48	2082
	Antares W.	46 32 1	2147	48 21 48	2131	50 12 0	2116	52 2 35	2102
	Fomalhaut E.	45 41 46	3134	44 14 18	3193	42 48 1	3263	41 23 6	3314
	α Pegasi E.	58 22 29	2321	56 37 0	2318	54 51 28	2317	53 5 53	2318
	α Arietis E.	101 11 7	2152	99 21 27	2139	97 31 27	2126	95 41 7	2113
	Mars E.	120 37 27	2266	118 50 38	2253	117 3 29	2239	115 16 0	2226
16	Spica W.	106 42 0	2005	108 35 26	1998	110 29 4	1991	112 22 53	1984
	Jupiter W.	79 13 47	2032	81 6 31	2024	82 59 28	2017	84 52 35	2010
	Antares W.	61 20 32	2043	63 12 59	2034	65 5 40	2026	66 58 34	2018
	α Pegasi E.	44 19 25	2359	42 34 52	2378	40 50 46	2401	39 7 13	2430
	α Arietis E.	86 25 8	2063	84 33 12	2056	82 41 5	2049	80 48 47	2044
	Mars E.	106 14 13	2174	104 25 6	2166	102 35 47	2158	100 46 16	2151
	Aldebaran E.	119 38 6	2014	117 44 54	2007	115 51 31	2000	113 57 56	1993
17	Jupiter W.	94 20 18	1991	96 14 7	1989	98 7 59	1989	100 1 51	1988
	Antares W.	76 25 30	1995	78 19 13	1992	80 13 0	1991	82 6 48	1991
	α Arietis E.	71 25 34	2029	69 32 45	2028	67 39 55	2030	65 47 7	2032
	Mars E.	91 36 30	2129	89 46 15	2128	87 55 58	2126	86 5 38	2126
	Aldebaran E.	104 27 47	1972	102 33 28	1969	100 39 5	1968	98 44 41	1968
18	Jupiter W.	109 30 52	2000	111 24 26	2005	113 17 53	2010	115 11 11	2017
	Antares W.	91 35 30	2002	93 29 1	2007	95 22 25	2012	97 15 40	2019
	α Aquilæ W.	44 38 7	2863	46 11 13	2813	47 45 24	2769	49 20 33	2731
	α Arietis E.	56 24 27	2058	54 32 24	2067	52 40 33	2077	50 48 59	2088
	Mars E.	76 54 21	2137	75 4 18	2141	73 14 22	2147	71 24 34	2153
	Aldebaran E.	89 13 3	1980	87 18 57	1984	85 24 57	1990	83 31 7	1996
19	Antares W.	106 39 2	2062	108 30 59	2073	110 22 39	2085	112 14 2	2098
	α Aquilæ W.	57 26 36	2613	59 5 13	2601	60 44 6	2592	62 23 13	2585
	Fomalhaut W.	33 8 1	4116	34 17 47	3928	35 30 38	3769	36 46 12	3634
	α Arietis E.	41 36 13	2168	39 46 58	2190	37 58 16	2214	36 10 10	2241
	Mars E.	62 18 19	2195	60 29 44	2206	58 41 25	2217	56 53 22	2229
	Aldebaran E.	74 4 41	2037	72 12 5	2048	70 19 46	2059	68 27 43	2070
	Pollux E.	116 17 36	2135	114 27 30	2143	112 37 36	2151	110 47 54	2160
20	α Aquilæ W.	70 40 2	2583	72 19 20	2589	73 58 30	2596	75 37 31	2604
	Fomalhaut W.	43 34 33	3201	45 0 41	3149	46 27 52	3104	47 55 57	3066
	α Pegasi W.	23 56 2	3274	25 20 44	3143	26 48 3	3037	28 17 30	2953
	Mars E.	47 57 47	2296	46 11 41	2310	44 25 56	2326	42 40 34	2341
	Aldebaran E.	59 12 17	2137	57 22 14	2152	55 32 34	2168	53 43 18	2183

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
13	α Pegasi E.	79 11 1	2453	77 28 41	2436	75 45 58	2421	74 2 54	2407
14	Saturn W.	91 37 18	2192	93 25 57	2177	95 14 59	2163	97 4 23	2148
	Spica W.	84 23 3	2151	86 12 45	2136	88 2 50	2121	89 53 17	2107
	Jupiter W.	57 2 57	2177	58 51 59	2162	60 41 24	2147	62 31 11	2133
	Antares W.	39 17 24	2221	41 5 20	2202	42 53 45	2183	44 42 39	2164
	Fomalhaut E.	51 40 27	2975	50 9 43	3005	48 39 36	3042	47 10 15	3084
	α Pegasi E.	65 22 52	2349	63 38 3	2340	61 53 2	2333	60 7 50	2326
	α Arietis E.	108 25 58	2214	106 37 51	2198	104 49 20	2182	103 0 25	2167
15	Saturn W.	106 16 28	2087	108 7 48	2077	109 59 23	2067	111 51 14	2058
	Spica W.	99 10 43	2044	101 3 9	2033	102 55 51	2024	104 48 48	2014
	Jupiter W.	71 45 15	2071	73 36 59	2060	75 28 59	2050	77 21 16	2041
	Antares W.	53 53 31	2088	55 44 49	2076	57 36 25	2064	59 28 20	2053
	Fomalhaut E.	39 59 46	3438	38 38 13	3549	37 18 43	3679	36 1 34	3830
	α Pegasi E.	51 20 20	2321	49 34 51	2326	47 49 29	2334	46 4 19	2345
	α Arietis E.	93 50 28	2102	91 59 32	2091	90 8 19	2081	88 16 50	2072
	Mars E.	113 28 12	2214	111 40 6	2204	109 51 44	2193	108 3 6	2183
16	Spica W.	114 16 53	1979	116 11 1	1974	118 5 17	1970	119 59 39	1966
	Jupiter W.	86 45 53	2005	88 39 19	2001	90 32 52	1996	92 26 32	1993
	Antares W.	68 51 40	2012	70 44 56	2007	72 38 20	2002	74 31 52	1998
	α Pegasi E.	37 24 21	2465	35 42 18	2507	34 1 15	2558	32 21 23	2621
	α Arietis E.	78 56 21	2039	77 3 47	2035	75 11 7	2032	73 18 22	2030
	Mars E.	98 56 34	2145	97 6 44	2140	95 16 46	2136	93 26 41	2132
	Aldebaran E.	112 4 10	1987	110 10 15	1982	108 16 12	1977	106 22 2	1974
17	Jupiter W.	101 55 44	1989	103 49 36	1990	105 43 26	1993	107 37 11	1996
	Antares W.	84 0 36	1991	85 54 24	1992	87 48 10	1995	89 41 52	1998
	α Arietis E.	63 54 22	2035	62 1 42	2039	60 9 8	2044	58 16 43	2050
	Mars E.	84 15 19	2126	82 24 59	2128	80 34 43	2130	78 44 29	2133
	Aldebaran E.	96 50 17	1969	94 55 54	1970	93 1 33	1973	91 7 16	1976
18	Jupiter W.	117 4 19	2023	118 57 17	2031	120 50 3	2040	122 42 35	2049
	Antares W.	99 8 45	2026	101 1 39	2034	102 54 20	2043	104 46 48	2052
	α Aquilæ W.	50 56 31	2698	52 33 13	2671	54 10 32	2648	55 48 21	2629
	α Arietis E.	48 57 42	2101	47 6 44	2116	45 16 9	2131	43 25 57	2149
	Mars E.	69 34 56	2160	67 45 28	2168	65 56 12	2176	64 7 8	2186
	Aldebaran E.	81 37 26	2002	79 43 55	2010	77 50 37	2019	75 57 32	2028
19	Antares W.	114 5 5	2111	115 55 48	2124	117 46 10	2138	119 36 11	2153
	α Aquilæ W.	64 2 28	2580	65 41 50	2578	67 21 15	2578	69 0 40	2580
	Fomalhaut W.	38 4 10	3519	39 24 13	3420	40 46 7	3335	42 9 38	3263
	α Arietis E.	34 22 43	2271	32 36 1	2305	30 50 8	2343	29 5 11	2387
	Mars E.	55 5 37	2241	53 18 10	2254	51 31 2	2267	49 44 14	2281
	Aldebaran E.	66 35 58	2083	64 44 33	2096	62 53 27	2109	61 2 41	2123
	Pollux E.	108 58 25	2170	107 9 12	2181	105 20 15	2192	103 31 35	2204
20	α Aquilæ W.	77 16 22	2613	78 54 59	2624	80 33 22	2636	82 11 29	2649
	Fomalhaut W.	49 24 49	3034	50 54 20	3007	52 24 24	2985	53 54 55	2967
	α Pegasi W.	29 48 41	2887	31 21 17	2834	32 55 1	2791	34 29 41	2757
	Mars E.	40 55 34	2357	39 10 58	2374	37 26 46	2391	35 42 58	2407
	Aldebaran E.	51 54 25	2199	50 5 56	2216	48 17 52	2233	46 30 14	2250

MEAN TIME.

LUNAR DISTANCES.

The Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^a .	P.L. of diff.	VI ^a .	P.L. of diff.	IX ^a .	P.L. of diff.
0	Pollux E.	101 43 13	2217	99 55 11	2230	98 7 28	2245	96 20 7	2259
	SUN E.	138 22 33	2458	136 40 20	2472	134 58 27	2485	133 16 52	2499
1	α Aquilæ W.	83 49 18	2662	85 26 49	2677	87 3 59	2693	88 40 48	2710
	Fomalhaut W.	55 25 49	2953	56 57 0	2943	58 28 25	2935	60 0 0	2929
	α Pegasi W.	36 5 5	2731	37 41 3	2711	39 17 28	2696	40 54 13	2685
	Mars E.	33 59 34	2424	32 16 34	2443	30 34 0	2460	28 51 50	2478
	Aldebaran E.	44 43 1	2268	42 56 14	2286	41 9 54	2304	39 24 1	2322
	Pollux E.	87 28 58	2340	85 43 56	2337	83 59 20	2375	82 15 9	2393
	SUN E.	124 54 22	2580	123 15 0	2598	121 36 2	2615	119 57 28	2634
2	α Aquilæ W.	96 39 1	2805	98 13 22	2827	99 47 15	2849	101 20 40	2872
	Fomalhaut W.	67 38 44	2933	69 10 21	2939	70 41 51	2945	72 13 13	2953
	α Pegasi W.	49 0 12	2675	50 37 26	2679	52 14 34	2685	53 51 34	2691
	Aldebaran E.	30 41 29	2422	28 58 25	2443	27 15 51	2464	25 33 47	2487
	Pollux E.	73 40 50	2487	71 59 19	2507	70 18 16	2527	68 37 41	2547
	SUN E.	111 50 46	2726	110 14 40	2744	108 38 59	2763	107 3 42	2782
3	Fomalhaut W.	79 47 9	3006	81 17 14	3019	82 47 3	3033	84 16 35	3047
	α Pegasi W.	61 53 57	2738	63 29 46	2749	65 5 21	2761	66 40 40	2773
	α Arietis W.	18 50 40	3116	20 18 30	3048	21 47 43	2997	23 17 59	2960
	Pollux E.	60 21 43	2651	58 43 57	2672	57 6 39	2693	55 29 50	2716
	SUN E.	99 13 26	2875	97 40 35	2893	96 8 7	2911	94 36 2	2930
4	Fomalhaut W.	91 39 45	3124	93 7 25	3142	94 34 44	3158	96 1 43	3176
	α Pegasi W.	74 33 13	2837	76 6 53	2849	77 40 17	2862	79 13 25	2876
	α Arietis W.	30 57 36	2883	32 30 17	2879	34 3 2	2878	35 35 49	2880
	Pollux E.	47 33 12	2831	45 59 24	2856	44 26 8	2881	42 53 25	2907
	SUN E.	87 1 15	3016	85 31 22	3033	84 1 50	3049	82 32 38	3065
5	Fomalhaut W.	103 11 13	3270	104 36 0	3290	106 0 23	3312	107 24 21	3332
	α Pegasi W.	86 54 49	2940	88 26 17	2954	89 57 28	2966	91 28 24	2979
	α Arietis W.	43 18 47	2902	44 51 4	2909	46 23 12	2916	47 55 11	2923
	Mars W.	17 36 32	2968	19 7 25	2981	20 38 1	2995	22 8 20	3007
	Pollux E.	35 18 43	3061	33 49 46	3098	32 21 34	3138	30 54 11	3183
	SUN E.	75 11 28	3142	73 44 9	3156	72 17 7	3171	70 50 23	3184
6	α Pegasi W.	98 59 4	3041	100 28 26	3053	101 57 33	3065	103 26 26	3078
	α Arietis W.	55 32 48	2960	57 3 51	2968	58 34 44	2976	60 5 27	2982
	Mars W.	29 36 9	3066	31 5 0	3077	32 33 38	3087	34 2 3	3097
	Aldebaran W.	21 55 11	2923	23 27 0	2928	24 58 43	2934	26 30 19	2940
	SUN E.	63 40 36	3248	62 15 23	3259	60 50 24	3271	59 25 39	3282
7	α Arietis W.	67 36 50	3018	69 6 40	3025	70 36 22	3031	72 5 57	3038
	Mars W.	41 21 14	3143	42 48 32	3150	44 15 41	3158	45 42 40	3166
	Aldebaran W.	34 6 20	2972	35 37 8	2978	37 7 48	2985	38 38 20	2991
	SUN E.	52 25 0	3333	51 1 27	3344	49 38 6	3353	48 14 55	3361
8	α Arietis W.	79 31 57	3066	81 0 48	3070	82 29 34	3076	83 58 13	3081
	Mars W.	52 55 30	3198	54 21 41	3204	55 47 45	3209	57 13 44	3214
	Aldebaran W.	46 9 9	3018	47 38 59	3024	49 8 42	3028	50 38 20	3033
	SUN E.	41 21 29	3403	39 59 16	3412	38 37 13	3419	37 15 18	3427

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
20	Pollux E.	94 33 7	2274	92 46 29	2290	91 0 15	2306	89 14 24	2323
	SUN E.	131 35 38	2515	129 54 46	2530	128 14 15	2547	126 34 7	2564
21	α Aquilæ W.	90 17 15	2727	91 53 19	2745	93 28 59	2765	95 4 13	2785
	Fomalhaut W.	61 31 42	2926	63 3 28	2925	64 35 15	2926	66 7 1	2928
	α Pegasi W.	42 31 13	2678	44 8 22	2673	45 45 38	2672	47 22 56	2673
	Mars E.	27 10 6	2496	25 28 47	2514	23 47 53	2532	22 7 24	2551
	Aldebaran E.	37 38 34	2342	35 53 36	2361	34 9 5	2381	32 25 3	2401
	Pollux E.	80 31 24	2411	78 48 5	2430	77 5 13	2449	75 22 48	2468
	SUN E.	118 19 19	2651	116 41 33	2670	115 4 13	2688	113 27 17	2707
22	α Aquilæ W.	102 53 35	2895	104 26 1	2920	105 57 55	2944	107 29 18	2969
	Fomalhaut W.	73 44 25	2962	75 15 26	2972	76 46 14	2983	78 16 48	2994
	α Pegasi W.	55 28 26	2699	57 5 7	2708	58 41 36	2717	60 17 53	2727
	Aldebaran E.	23 52 15	2510	22 11 16	2535	20 30 52	2562	18 51 4	2591
	Pollux E.	66 57 33	2567	65 17 53	2588	63 38 42	2608	61 59 58	2629
	SUN E.	105 28 50	2801	103 54 23	2819	102 20 20	2838	100 46 41	2856
23	Fomalhaut W.	85 45 50	3061	87 14 47	3077	88 43 25	3092	90 11 45	3108
	α Pegasi W.	68 15 43	2785	69 50 30	2798	71 25 1	2811	72 59 15	2823
	α Arietis W.	24 49 2	2933	26 20 39	2913	27 52 42	2899	29 25 3	2889
	Pollux E.	53 53 31	2738	52 17 41	2760	50 42 21	2783	49 7 31	2807
	SUN E.	93 4 21	2947	91 33 1	2965	90 2 4	2982	88 31 29	2999
24	Fomalhaut W.	97 28 21	3194	98 54 38	3213	100 20 32	3231	101 46 4	3251
	α Pegasi W.	80 46 15	2888	82 18 49	2901	83 51 5	2915	85 23 6	2928
	α Arietis W.	37 8 34	2883	38 41 15	2886	40 13 52	2890	41 46 43	2896
	Pollux E.	41 22 15	2933	39 49 41	2964	38 18 43	2994	36 48 43	3026
	SUN E.	81 3 46	3082	79 35 14	3097	78 7 0	3112	76 39 5	3127
25	Fomalhaut W.	108 47 56	3354	110 11 5	3377	111 33 48	3400	112 56 5	3423
	α Pegasi W.	92 59 3	2992	94 29 26	3004	95 59 34	3016	97 29 27	3029
	α Arietis W.	49 27 1	2930	50 58 42	2937	52 30 14	2945	54 1 36	2953
	Mars W.	23 38 24	3020	25 8 12	3031	26 37 46	3044	28 7 4	3055
	Pollux E.	29 27 42	3232	28 2 11	3287	26 37 44	3350	25 14 31	3422
	SUN E.	69 23 54	3198	67 57 42	3210	66 31 45	3223	65 6 3	3236
26	α Pegasi W.	104 55 3	3089	106 23 26	3101	107 51 34	3113	109 19 28	3125
	α Arietis W.	61 36 2	2990	63 6 27	2997	64 36 43	3004	66 6 51	3011
	Mars W.	35 30 16	3107	36 58 17	3116	38 26 7	3125	39 53 46	3134
	Aldebaran W.	28 1 47	2946	29 33 7	2952	31 4 20	2959	32 35 24	2966
	SUN E.	58 1 6	3293	56 36 46	3304	55 12 39	3314	53 48 44	3324
27	α Arietis W.	73 35 23	3043	75 4 42	3049	76 33 54	3055	78 2 59	3061
	Mars W.	47 9 30	3173	48 36 12	3180	50 2 45	3186	51 29 11	3192
	Aldebaran W.	40 8 44	2997	41 39 1	3003	43 9 10	3008	44 39 13	3013
	SUN E.	46 51 54	3370	45 29 3	3379	44 6 23	3386	42 43 51	3395
28	α Arietis W.	85 26 46	3085	86 55 14	3089	88 23 37	3094	89 51 54	3098
	Mars W.	58 39 36	3219	60 5 23	3224	61 31 4	3227	62 56 41	3231
	Aldebaran W.	52 7 52	3038	53 37 18	3041	55 6 40	3045	56 35 57	3049
	SUN E.	35 53 32	3434	34 31 54	3443	33 10 26	3450	31 49 6	3459

AMR's Day Numbers—For correcting the Places of the Fixed Stars.

At Mean Midnight,

Day of the Month.	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1°56854	0°96912	0°31236	1°50139	64°999
2	1°57133	0°97932	0°31292	1°50123	64°395
3	1°57407	0°98948	0°31347	1°50106	63°791
4	1°57675	0°99961	0°31402	1°50089	63°186
5	1°57937	1°00968	0°31456	1°50072	62°581
6	1°58193	1°01969	0°31509	1°50055	61°976
7	1°58444	1°02965	0°31561	1°50038	61°372
8	1°58690	1°03955	0°31613	1°50021	60°768
9	1°58930	1°04938	0°31664	1°50004	60°164
10	1°59164	1°05914	0°31715	1°49987	59°560
11	1°59393	1°06883	0°31765	1°49970	58°957
12	1°59616	1°07845	0°31814	1°49953	58°354
13	1°59834	1°08799	0°31863	1°49937	57°754
14	1°60046	1°09746	0°31911	1°49921	57°154
15	1°60253	1°10685	0°31959	1°49904	56°555
16	1°60454	1°11615	0°32006	1°49888	55°959
17	1°60649	1°12537	0°32052	1°49872	55°363
18	1°60839	1°13451	0°32097	1°49857	54°768
19	1°61024	1°14356	0°32142	1°49842	54°174
20	1°61203	1°15253	0°32187	1°49827	53°583
21	1°61377	1°16141	0°32231	1°49813	52°994
22	1°61546	1°17021	0°32274	1°49799	52°406
23	1°61710	1°17892	0°32317	1°49785	51°819
24	1°61868	1°18754	0°32359	1°49772	51°234
25	1°62020	1°19608	0°32400	1°49759	50°652
26	1°62167	1°20452	0°32441	1°49747	50°074
27	1°62309	1°21287	0°32482	1°49735	49°498
28	1°62445	1°22114	0°32522	1°49724	48°925
29	1°62576	1°22932	0°32562	1°49713	48°353
30	1°62701	1°23741	0°32601	1°49703	47°784
31	1°62821	1°24541	0°32640	1°49694	47°218
32	1°62935	1°25332	0°32678	1°49685	46°656

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.		Mean Equinoctial Time, adding 0 ^d .238545. Days.	From Mean Noon of January 1.	
	At Mean Midnight, Logarithms of							Day of the Year.	Fraction of the Year.*
A	B	C	D						
1	+1 ^o .0802	—1 ^o .1955	+9 ^o .9309	+0 ^o .8276	15 ^h 16 ^m 6 ^s .40	132	213	.5832	
2	1 ^o .0888	1 ^o .1894	9 ^o .9322	0 ^o .8269	15 12 10.49	133	214	.5859	
3	1 ^o .0970	1 ^o .1830	9 ^o .9335	0 ^o .8261	15 8 14.58	134	215	.5887	
4	+1 ^o .1050	—1 ^o .1764	+9 ^o .9349	+0 ^o .8253	15 4 18.67	135	216	.5914	
5	1 ^o .1127	1 ^o .1695	9 ^o .9361	0 ^o .8245	15 0 22.76	136	217	.5941	
6	1 ^o .1202	1 ^o .1625	9 ^o .9374	0 ^o .8237	14 56 26.85	137	218	.5969	
7	+1 ^o .1274	—1 ^o .1551	+9 ^o .9387	+0 ^o .8229	14 52 30.95	138	219	.5996	
8	1 ^o .1344	1 ^o .1476	9 ^o .9399	0 ^o .8221	14 48 35.04	139	220	.6023	
9	1 ^o .1412	1 ^o .1398	9 ^o .9411	0 ^o .8212	14 44 39.13	140	221	.6051	
10	+1 ^o .1477	—1 ^o .1317	+9 ^o .9423	+0 ^o .8204	14 40 43.22	141	222	.6078	
11	1 ^o .1541	1 ^o .1233	9 ^o .9435	0 ^o .8196	14 36 47.31	142	223	.6106	
12	1 ^o .1602	1 ^o .1146	9 ^o .9447	0 ^o .8188	14 32 51.40	143	224	.6133	
13	+1 ^o .1661	—1 ^o .1057	+9 ^o .9458	+0 ^o .8180	14 28 55.49	144	225	.6160	
14	1 ^o .1718	1 ^o .0964	9 ^o .9470	0 ^o .8173	14 24 59.58	145	226	.6188	
15	1 ^o .1773	1 ^o .0867	9 ^o .9481	0 ^o .8165	14 21 3.67	146	227	.6215	
16	+1 ^o .1827	—1 ^o .0768	+9 ^o .9492	+0 ^o .8157	14 17 7.77	147	228	.6242	
17	1 ^o .1878	1 ^o .0665	9 ^o .9503	0 ^o .8149	14 13 11.86	148	229	.6270	
18	1 ^o .1928	1 ^o .0558	9 ^o .9513	0 ^o .8142	14 9 15.95	149	230	.6297	
19	+1 ^o .1976	—1 ^o .0446	+9 ^o .9524	+0 ^o .8135	14 5 20.05	150	231	.6325	
20	1 ^o .2022	1 ^o .0331	9 ^o .9534	0 ^o .8127	14 1 24.14	151	232	.6352	
21	1 ^o .2067	1 ^o .0211	9 ^o .9545	0 ^o .8120	13 57 28.23	152	233	.6379	
22	+1 ^o .2110	—1 ^o .0087	+9 ^o .9555	+0 ^o .8114	13 53 32.32	153	234	.6407	
23	1 ^o .2151	0 ^o .9957	9 ^o .9565	0 ^o .8107	13 49 36.41	154	235	.6434	
24	1 ^o .2191	0 ^o .9822	9 ^o .9574	0 ^o .8101	13 45 40.50	155	236	.6461	
25	+1 ^o .2229	—0 ^o .9682	+9 ^o .9584	+0 ^o .8094	13 41 44.60	156	237	.6489	
26	1 ^o .2265	0 ^o .9535	9 ^o .9593	0 ^o .8088	13 37 48.69	157	238	.6516	
27	1 ^o .2300	0 ^o .9382	9 ^o .9603	0 ^o .8082	13 33 52.78	158	239	.6544	
28	+1 ^o .2334	—0 ^o .9222	+9 ^o .9612	+0 ^o .8077	13 29 56.88	159	240	.6571	
29	1 ^o .2366	0 ^o .9055	9 ^o .9621	0 ^o .8072	13 26 0.97	160	241	.6598	
30	1 ^o .2397	0 ^o .8879	9 ^o .9630	0 ^o .8067	13 22 5.06	161	242	.6626	
31	1 ^o .2426	0 ^o .8695	9 ^o .9639	0 ^o .8062	13 18 9.16	162	243	.6653	
32	+1 ^o .2454	—0 ^o .8501	+9 ^o .9648	+0 ^o .8058	13 14 13.25	163	244	.6681	

* Add .0011 if Fraction be required for the time *t*, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		<i>h m s</i>	<i>s</i>	<i>° ' "</i>	<i>"</i>	<i>m s</i>	<i>m s</i>	<i>s</i>
Thur.	1	10 43 19.61	9.070	N.8 6 28.0	54.64	1 4.38	0 16.63	0.784
Frid.	2	10 46 57.14	9.058	7 44 32.7	54.96	1 4.34	0 35.59	0.796
Sat.	3	10 50 34.40	9.047	7 22 29.9	55.27	1 4.30	0 54.83	0.807
Sun.	4	10 54 11.40	9.037	7 0 19.9	55.56	1 4.26	1 14.33	0.817
Mon.	5	10 57 48.15	9.027	6 38 3.1	55.83	1 4.23	1 34.08	0.827
Tues.	6	11 1 24.68	9.018	6 15 39.9	56.10	1 4.20	1 54.04	0.836
Wed.	7	11 5 1.00	9.009	5 53 10.4	56.35	1 4.17	2 14.23	0.845
Thur.	8	11 8 37.12	9.002	5 30 35.2	56.58	1 4.15	2 34.60	0.853
Frid.	9	11 12 13.07	8.995	5 7 54.5	56.80	1 4.12	2 55.15	0.860
Sat.	10	11 15 48.86	8.988	4 45 8.6	57.01	1 4.10	3 15.85	0.866
Sun.	11	11 19 24.50	8.982	4 22 18.0	57.20	1 4.09	3 36.71	0.872
Mon.	12	11 23 0.01	8.978	3 59 22.8	57.38	1 4.08	3 57.69	0.877
Tues.	13	11 26 35.42	8.974	3 36 23.5	57.55	1 4.07	4 18.77	0.880
Wed.	14	11 30 10.75	8.971	3 13 20.3	57.71	1 4.06	4 39.93	0.883
Thur.	15	11 33 46.03	8.969	2 50 13.5	57.85	1 4.05	5 1.16	0.885
Frid.	16	11 37 21.28	8.968	2 27 3.5	57.98	1 4.05	5 22.40	0.885
Sat.	17	11 40 56.51	8.969	2 3 50.5	58.10	1 4.05	5 43.66	0.885
Sun.	18	11 44 31.78	8.971	1 40 34.8	58.20	1 4.05	6 4.89	0.884
Mon.	19	11 48 7.10	8.973	1 17 16.8	58.29	1 4.06	6 26.07	0.881
Tues.	20	11 51 42.49	8.977	0 53 56.8	58.37	1 4.07	6 47.17	0.877
Wed.	21	11 55 17.96	8.981	0 30 35.1	58.43	1 4.08	7 8.19	0.873
Thur.	22	11 58 53.56	8.986	N.0 7 12.0	58.48	1 4.10	7 29.09	0.868
Frid.	23	12 2 29.30	8.992	S.0 16 12.1	58.52	1 4.12	7 49.85	0.862
Sat.	24	12 6 5.17	8.999	0 39 36.8	58.54	1 4.14	8 10.46	0.855
Sun.	25	12 9 41.23	9.007	1 3 1.8	58.54	1 4.16	8 30.91	0.848
Mon.	26	12 13 17.48	9.015	1 26 26.7	58.53	1 4.19	8 51.16	0.840
Tues.	27	12 16 53.94	9.024	1 49 51.2	58.50	1 4.22	9 11.19	0.831
Wed.	28	12 20 30.62	9.034	2 13 14.9	58.46	1 4.25	9 31.01	0.821
Thur.	29	12 24 7.56	9.045	2 36 37.5	58.41	1 4.29	9 50.57	0.810
Frid.	30	12 27 44.75	9.056	2 59 58.5	58.34	1 4.33	10 9.87	0.799
Sat.	31	12 31 22.23		S.3 23 17.7		1 4.37	10 28.90	

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
Thur.	1	^h 10 ^m 43 ^s 19.65	N. [°] 8 ['] 6 ["] 27.7	['] 15 ["] 53.7	^m 0 ^s 16.63	^h 10 ^m 43 ^s 36.28
Frid.	2	10 46 57.23	7 44 32.1	15 53.9	0 35.60	10 47 32.83
Sat.	3	10 50 34.54	7 22 29.0	15 54.1	0 54.84	10 51 29.38
Sun.	4	10 54 11.59	7 0 18.8	15 54.4	1 14.35	10 55 25.94
Mon.	5	10 57 48.39	6 38 1.7	15 54.6	1 34.10	10 59 22.49
Tues.	6	11 1 24.97	6 15 38.1	15 54.9	1 54.07	11 3 19.04
Wed.	7	11 5 1.34	5 53 8.3	15 55.1	2 14.26	11 7 15.60
Thur.	8	11 8 37.51	5 30 32.8	15 55.4	2 34.64	11 11 12.15
Frid.	9	11 12 13.51	5 7 51.7	15 55.6	2 55.19	11 15 8.70
Sat.	10	11 15 49.35	4 45 5.5	15 55.9	3 15.90	11 19 5.25
Sun.	11	11 19 25.04	4 22 14.5	15 56.1	3 36.76	11 23 1.80
Mon.	12	11 23 0.60	3 59 19.0	15 56.4	3 57.75	11 26 58.35
Tues.	13	11 26 36.07	3 36 19.3	15 56.7	4 18.83	11 30 54.90
Wed.	14	11 30 11.45	3 13 15.8	15 56.9	4 40.00	11 34 51.45
Thur.	15	11 33 46.78	2 50 8.6	15 57.2	5 1.23	11 38 48.01
Frid.	16	11 37 22.08	2 26 58.3	15 57.5	5 22.48	11 42 44.56
Sat.	17	11 40 57.37	2 3 45.0	15 57.7	5 43.74	11 46 41.11
Sun.	18	11 44 32.69	1 40 28.9	15 58.0	6 4.98	11 50 37.67
Mon.	19	11 48 8.06	1 17 10.6	15 58.2	6 26.16	11 54 34.22
Tues.	20	11 51 43.50	0 53 50.2	15 58.5	6 47.27	11 58 30.77
Wed.	21	11 55 19.03	0 30 28.1	15 58.8	7 8.29	12 2 27.32
Thur.	22	11 58 54.68	N. 0 7 4.7	15 59.0	7 29.20	12 6 23.88
Frid.	23	12 2 30.47	S. 0 16 19.7	15 59.3	7 49.96	12 10 20.43
Sat.	24	12 6 6.40	0 39 44.8	15 59.6	8 10.58	12 14 16.98
Sun.	25	12 9 42.51	1 3 10.1	15 59.8	8 31.03	12 18 13.54
Mon.	26	12 13 18.81	1 26 35.4	16 0.1	8 51.28	12 22 10.09
Tues.	27	12 16 55.32	1 50 0.2	16 0.4	9 11.32	12 26 6.64
Wed.	28	12 20 32.05	2 13 24.2	16 0.7	9 31.14	12 30 3.19
Thur.	29	12 24 9.04	2 36 47.1	16 0.9	9 50.70	12 33 59.74
Frid.	30	12 27 46.28	3 0 8.4	16 1.2	10 10.01	12 37 56.29
Sat.	31	12 31 23.81	S. 3 23 27.9	16 1.5	10 29.04	12 41 52.85

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	159 14 49 ^o 9 ["]	S. 0 ^o 59 ["]	0 ^o 0037047	14 43 ['] 2 ["]	14 43 ['] 7 ["]	53 55 ['] 7 ["]	53 57 ['] 8 ["]
2	160 13 0 ^o 0 ["]	0 ^o 51 ["]	0 ^o 0035975	14 44 ['] 6 ["]	14 45 ['] 9 ["]	54 1 ['] 1 ["]	54 5 ['] 9 ["]
3	161 11 11 ^o 7 ["]	0 ^o 43 ["]	0 ^o 0034887	14 47 ['] 6 ["]	14 49 ['] 7 ["]	54 12 ['] 1 ["]	54 19 ['] 7 ["]
4	162 9 25 ^o 0 ["]	0 ^o 31 ["]	0 ^o 0033782	14 52 ['] 2 ["]	14 55 ['] 2 ["]	54 28 ['] 9 ["]	54 39 ['] 7 ["]
5	163 7 39 ^o 9 ["]	0 ^o 19 ["]	0 ^o 0032663	14 58 ['] 6 ["]	15 2 ['] 4 ["]	54 52 ['] 1 ["]	55 6 ['] 2 ["]
6	164 5 56 ^o 5 ["]	S. 0 ^o 07 ["]	0 ^o 0031530	15 6 ['] 7 ["]	15 11 ['] 6 ["]	55 22 ['] 0 ["]	55 39 ['] 7 ["]
7	165 4 14 ^o 7 ["]	N. 0 ^o 06 ["]	0 ^o 0030384	15 16 ['] 9 ["]	15 22 ['] 6 ["]	55 59 ['] 1 ["]	56 20 ['] 2 ["]
8	166 2 34 ^o 5 ["]	0 ^o 18 ["]	0 ^o 0029227	15 28 ['] 8 ["]	15 35 ['] 4 ["]	56 42 ['] 9 ["]	57 7 ['] 0 ["]
9	167 0 55 ^o 8 ["]	0 ^o 30 ["]	0 ^o 0028060	15 42 ['] 3 ["]	15 49 ['] 5 ["]	57 32 ['] 4 ["]	57 58 ['] 8 ["]
10	167 59 18 ^o 7 ["]	0 ^o 39 ["]	0 ^o 0026884	15 56 ['] 9 ["]	16 4 ['] 2 ["]	58 25 ['] 7 ["]	58 52 ['] 7 ["]
11	168 57 43 ^o 2 ["]	0 ^o 46 ["]	0 ^o 0025701	16 11 ['] 5 ["]	16 18 ['] 5 ["]	59 19 ['] 3 ["]	59 44 ['] 9 ["]
12	169 56 9 ^o 2 ["]	0 ^o 51 ["]	0 ^o 0024513	16 25 ['] 0 ["]	16 30 ['] 9 ["]	60 8 ['] 8 ["]	60 30 ['] 3 ["]
13	170 54 36 ^o 8 ["]	0 ^o 52 ["]	0 ^o 0023322	16 35 ['] 9 ["]	16 39 ['] 9 ["]	60 48 ['] 8 ["]	61 3 ['] 6 ["]
14	171 53 6 ^o 1 ["]	0 ^o 49 ["]	0 ^o 0022130	16 42 ['] 9 ["]	16 44 ['] 5 ["]	61 14 ['] 2 ["]	61 20 ['] 2 ["]
15	172 51 37 ^o 1 ["]	0 ^o 43 ["]	0 ^o 0020937	16 44 ['] 8 ["]	16 43 ['] 8 ["]	61 21 ['] 2 ["]	61 17 ['] 2 ["]
16	173 50 10 ^o 0 ["]	0 ^o 33 ["]	0 ^o 0019744	16 41 ['] 4 ["]	16 37 ['] 5 ["]	61 8 ['] 2 ["]	60 54 ['] 6 ["]
17	174 48 44 ^o 8 ["]	0 ^o 20 ["]	0 ^o 0018551	16 32 ['] 6 ["]	16 26 ['] 8 ["]	60 36 ['] 8 ["]	60 15 ['] 4 ["]
18	175 47 21 ^o 7 ["]	N. 0 ^o 08 ["]	0 ^o 0017359	16 20 ['] 1 ["]	16 12 ['] 9 ["]	59 51 ['] 0 ["]	59 24 ['] 4 ["]
19	176 46 0 ^o 9 ["]	S. 0 ^o 06 ["]	0 ^o 0016166	16 5 ['] 4 ["]	15 57 ['] 4 ["]	58 56 ['] 2 ["]	58 27 ['] 2 ["]
20	177 44 42 ^o 4 ["]	0 ^o 18 ["]	0 ^o 0014973	15 49 ['] 3 ["]	15 41 ['] 4 ["]	57 58 ['] 0 ["]	57 29 ['] 2 ["]
21	178 43 26 ^o 1 ["]	0 ^o 30 ["]	0 ^o 0013777	15 33 ['] 9 ["]	15 26 ['] 6 ["]	57 1 ['] 4 ["]	56 34 ['] 9 ["]
22	179 42 12 ^o 1 ["]	0 ^o 39 ["]	0 ^o 0012578	15 19 ['] 8 ["]	15 13 ['] 6 ["]	56 10 ['] 0 ["]	55 47 ['] 0 ["]
23	180 41 0 ^o 4 ["]	0 ^o 46 ["]	0 ^o 0011374	15 7 ['] 9 ["]	15 2 ['] 8 ["]	55 26 ['] 2 ["]	55 7 ['] 5 ["]
24	181 39 51 ^o 0 ["]	0 ^o 50 ["]	0 ^o 0010166	14 58 ['] 3 ["]	14 54 ['] 5 ["]	54 51 ['] 2 ["]	54 37 ['] 2 ["]
25	182 38 43 ^o 8 ["]	0 ^o 52 ["]	0 ^o 0008952	14 51 ['] 3 ["]	14 48 ['] 7 ["]	54 25 ['] 4 ["]	54 15 ['] 9 ["]
26	183 37 38 ^o 9 ["]	0 ^o 51 ["]	0 ^o 0007732	14 46 ['] 7 ["]	14 45 ['] 3 ["]	54 8 ['] 6 ["]	54 3 ['] 4 ["]
27	184 36 36 ^o 1 ["]	0 ^o 49 ["]	0 ^o 0006505	14 44 ['] 4 ["]	14 44 ['] 0 ["]	54 0 ['] 1 ["]	53 58 ['] 6 ["]
28	185 35 35 ^o 5 ["]	0 ^o 44 ["]	0 ^o 0005271	14 44 ['] 0 ["]	14 44 ['] 5 ["]	53 58 ['] 8 ["]	54 0 ['] 7 ["]
29	186 34 37 ^o 0 ["]	0 ^o 37 ["]	0 ^o 0004030	14 45 ['] 4 ["]	14 46 ['] 7 ["]	54 4 ['] 0 ["]	54 8 ['] 6 ["]
30	187 33 40 ^o 6 ["]	0 ^o 27 ["]	0 ^o 0002782	14 48 ['] 3 ["]	14 50 ['] 2 ["]	54 14 ['] 5 ["]	54 21 ['] 6 ["]
31	188 32 46 ^o 3 ["]	S. 0 ^o 17 ["]	0 ^o 0001529	14 52 ['] 5 ["]	14 55 ['] 0 ["]	54 29 ['] 8 ["]	54 39 ['] 1 ["]

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.								
		Longitude.		Latitude.		Age.		Meridian	
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	d	h m		
Thur.	1	161 54 26.5	167 49 55.8	S.4 20 55.0	S.4 3 33.0	0.2	0 3.1		
Frid.	2	173 45 38.3	179 41 46.9	3 43 30.4	3 20 58.6	1.2	0 44.9		
Sat.	3	185 38 36.6	191 36 23.7	2 56 10.5	2 29 20.0	2.2	1 27.1		
Sun.	4	197 35 27.5	203 36 8.5	2 0 42.1	1 30 33.5	3.2	2 10.2		
Mon.	5	209 38 50.4	215 43 58.9	S.0 59 11.1	S.0 26 53.2	4.2	2 54.8		
Tues.	6	221 52 1.7	228 3 29.0	N.0 6 0.7	N.0 39 10.5	5.2	3 41.6		
Wed.	7	234 18 51.7	240 38 42.0	1 12 14.3	1 44 49.3	6.2	4 30.9		
Thur.	8	247 3 31.9	253 33 52.0	2 16 31.6	2 46 55.5	7.2	5 22.8		
Frid.	9	260 10 11.1	266 52 54.1	3 15 34.1	3 41 59.4	8.2	6 17.0		
Sat.	10	273 42 20.6	280 38 43.2	4 5 42.4	4 26 13.8	9.2	7 12.9		
Sun.	11	287 42 5.6	294 52 21.3	4 43 4.7	4 55 47.3	10.2	8 9.8		
Mon.	12	302 9 11.5	309 32 4.7	5 3 56.7	5 7 12.1	11.2	9 6.8		
Tues.	13	317 0 16.9	324 32 51.0	5 5 18.1	4 58 6.6	12.2	10 3.4		
Wed.	14	332 8 39.3	339 46 25.7	4 45 37.7	4 28 0.7	13.2	10 59.5		
Thur.	15	347 24 48.5	355 2 25.2	4 5 34.1	3 38 45.4	14.2	11 55.1		
Frid.	16	2 37 54.5	10 10 1.7	3 8 9.2	2 34 26.5	15.2	12 50.5		
Sat.	17	17 37 40.0	24 59 54.1	1 58 21.5	1 20 40.3	16.2	13 45.9		
Sun.	18	32 16 0.3	39 25 28.1	N.0 42 8.3	N.0 3 28.8	17.2	14 41.4		
Mon.	19	46 27 58.9	53 23 25.8	S.0 34 38.7	S.1 11 38.8	18.2	15 36.7		
Tues.	20	60 11 51.7	66 53 28.9	1 47 1.2	2 20 20.2	19.2	16 31.2		
Wed.	21	73 28 35.9	79 57 37.1	2 51 14.5	3 19 27.4	20.2	17 24.3		
Thur.	22	86 21 0.5	92 39 17.4	3 44 45.5	4 6 58.6	21.2	18 15.6		
Frid.	23	98 53 0.0	105 2 41.4	4 25 59.1	4 41 41.4	22.2	19 4.5		
Sat.	24	111 8 54.5	117 12 11.5	4 54 2.2	5 2 59.1	23.2	19 51.3		
Sun.	25	123 13 3.4	129 11 59.4	5 8 31.6	5 10 39.8	24.2	20 36.1		
Mon.	26	135 9 26.8	141 5 50.6	5 9 25.4	5 4 51.1	25.2	21 19.4		
Tues.	27	147 1 34.2	152 56 58.6	4 57 0.4	4 45 58.8	26.2	22 1.7		
Wed.	28	158 52 22.6	164 48 3.5	4 31 52.3	4 14 48.6	27.2	22 43.6		
Thur.	29	170 44 16.7	176 41 16.4	3 54 57.2	3 32 28.8	28.2	23 25.8		
Frid.	30	182 39 15.9	188 38 27.7	3 7 35.5	2 40 31.5	29.2	0		
Sat.	31	194 39 4.0	200 41 16.9	S.2 11 32.0	S.1 40 54.4	0.6	0 8.9		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 1.				SATURDAY 3.			
0	h m s 10 46 37.61	N. 3 4 40.6	99.65	0	h m s 12 16 2.88	S. 4 56 17.8	98.35
1	10 48 29.11	2 54 42.7	99.77	1	12 17 55.90	5 6 7.9	98.17
2	10 50 20.59	2 44 44.1	99.89	2	12 19 49.00	5 15 56.9	97.98
3	10 52 12.04	2 34 44.7	99.99	3	12 21 42.21	5 25 44.7	97.79
4	10 54 3.47	2 24 44.8	100.09	4	12 23 35.51	5 35 31.5	97.59
5	10 55 54.88	2 14 44.3	100.18	5	12 25 28.90	5 45 17.0	97.38
6	10 57 46.28	2 4 43.2	100.27	6	12 27 22.40	5 55 1.2	97.17
7	10 59 37.67	1 54 41.6	100.35	7	12 29 16.00	6 4 44.2	96.95
8	11 1 29.05	1 44 39.5	100.42	8	12 31 9.71	6 14 25.9	96.72
9	11 3 20.41	1 34 36.9	100.49	9	12 33 3.52	6 24 6.3	96.49
10	11 5 11.77	1 24 34.0	100.55	10	12 34 57.45	6 33 45.2	96.25
11	11 7 3.13	1 14 30.6	100.61	11	12 36 51.49	6 43 22.7	96.00
12	11 8 54.48	1 4 27.0	100.66	12	12 38 45.65	6 52 58.7	95.75
13	11 10 45.84	0 54 23.1	100.70	13	12 40 39.93	7 2 33.2	95.49
14	11 12 37.20	0 44 18.8	100.74	14	12 42 34.32	7 12 6.2	95.23
15	11 14 28.56	0 34 14.4	100.77	15	12 44 28.84	7 21 37.6	94.96
16	11 16 19.94	0 24 9.7	100.80	16	12 46 23.48	7 31 7.4	94.68
17	11 18 11.32	0 14 4.9	100.82	17	12 48 18.25	7 40 35.4	94.39
18	11 20 2.72	N. 0 4 0.0	100.83	18	12 50 13.15	7 50 1.8	94.10
19	11 21 54.13	S. 0 6 5.0	100.84	19	12 52 8.19	7 59 26.5	93.81
20	11 23 45.57	0 16 10.0	100.84	20	12 54 3.35	8 8 49.3	93.51
21	11 25 37.02	0 26 15.1	100.83	21	12 55 58.66	8 18 10.4	93.20
22	11 27 28.49	0 36 20.1	100.82	22	12 57 54.10	8 27 29.5	92.88
23	11 29 19.99	S. 0 46 25.0	100.80	23	12 59 49.68	S. 8 36 46.8	94.53
FRIDAY 2.				SUNDAY 4.			
0	11 31 11.52	S. 0 56 29.9	100.78	0	1 1 45.41	S. 8 46 2.1	92.22
1	11 33 3.08	1 6 34.6	100.75	1	1 3 41.28	8 55 15.5	91.89
2	11 34 54.67	1 16 39.1	100.72	2	1 5 37.30	9 4 26.8	91.55
3	11 36 46.29	1 26 43.4	100.68	3	1 7 33.47	9 13 36.1	91.20
4	11 38 37.95	1 36 47.4	100.63	4	1 9 29.79	9 22 43.3	90.84
5	11 40 29.66	1 46 51.2	100.57	5	1 11 26.27	9 31 48.3	90.47
6	11 42 21.40	1 56 54.6	100.51	6	1 13 22.90	9 40 51.2	90.10
7	11 44 13.19	2 6 57.7	100.45	7	1 15 19.69	9 49 51.8	89.72
8	11 46 5.03	2 17 0.4	100.37	8	1 17 16.64	9 58 50.1	89.33
9	11 47 56.91	2 27 2.6	100.29	9	1 19 13.76	10 7 46.1	88.94
10	11 49 48.85	2 37 4.4	100.21	10	1 21 11.04	10 16 39.7	88.54
11	11 51 40.85	2 47 5.6	100.12	11	1 23 8.49	10 25 31.0	88.13
12	11 53 32.90	2 57 6.3	100.02	12	1 25 6.11	10 34 19.8	87.72
13	11 55 25.01	3 7 6.4	99.91	13	1 27 3.90	10 43 6.2	87.31
14	11 57 17.19	3 17 5.9	99.80	14	1 29 1.87	10 51 50.0	86.88
15	11 59 9.43	3 27 4.7	99.69	15	1 31 0.01	11 0 31.3	86.44
16	12 1 1.73	3 37 2.8	99.56	16	1 32 58.33	11 9 9.9	86.00
17	12 2 54.11	3 47 0.2	99.43	17	1 34 56.83	11 17 46.0	85.56
18	12 4 46.56	3 56 56.8	99.29	18	1 36 55.52	11 26 19.3	85.10
19	12 6 39.08	4 6 52.5	99.15	19	1 38 54.39	11 34 49.9	84.64
20	12 8 31.68	4 16 47.5	99.00	20	1 40 53.44	11 43 17.7	84.17
21	12 10 24.35	4 26 41.5	98.85	21	1 42 52.68	11 51 42.7	83.69
22	12 12 17.11	4 36 34.6	98.69	22	1 44 52.12	12 0 4.8	83.21
23	12 14 9.95	4 46 26.7	98.52	23	1 46 51.74	12 8 24.1	82.72
24	12 16 2.88	S. 4 56 17.8		24	1 48 51.56	S. 12 16 40.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 5.				WEDNESDAY 7.			
0	13 ^h 48 ^m 51 ^s 56	S. 12 16 40 3	82 22	0	15 ^h 29 ^m 08 ^s 1	S. 17 41 40 8	49 65
1	13 50 51 58	12 24 53 6	81 72	1	15 31 11 81	17 46 38 7	48 79
2	13 52 51 79	12 33 3 9	81 21	2	15 33 23 07	17 51 31 4	47 91
3	13 54 52 20	12 41 11 2	80 69	3	15 35 34 56	17 56 18 9	47 04
4	13 56 52 82	12 49 15 3	80 16	4	15 37 46 30	18 1 1 1	46 15
5	13 58 53 63	12 57 16 3	79 63	5	15 39 58 29	18 5 38 0	45 26
6	14 0 54 65	13 5 14 0	79 09	6	15 42 10 53	18 10 9 6	44 36
7	14 2 55 88	13 13 8 5	78 54	7	15 44 23 01	18 14 35 7	43 45
8	14 4 57 32	13 20 59 8	77 98	8	15 46 35 73	18 18 56 4	42 54
9	14 6 58 96	13 28 47 7	77 42	9	15 48 48 70	18 23 11 6	41 61
10	14 9 0 82	13 36 32 2	76 85	10	15 51 1 91	18 27 21 3	40 68
11	14 11 2 89	13 44 13 3	76 27	11	15 53 15 37	18 31 25 4	39 75
12	14 13 5 17	13 51 50 9	75 69	12	15 55 29 07	18 35 23 8	38 80
13	14 15 7 67	13 59 25 0	75 10	13	15 57 43 01	18 39 16 6	37 85
14	14 17 10 39	14 6 55 6	74 50	14	15 59 57 20	18 43 3 7	36 89
15	14 19 13 32	14 14 22 6	73 89	15	16 2 11 62	18 46 45 1	35 93
16	14 21 16 48	14 21 46 0	73 28	16	16 4 26 29	18 50 20 7	34 96
17	14 23 19 85	14 29 5 6	72 65	17	16 6 41 19	18 53 50 4	33 98
18	14 25 23 47	14 36 21 6	72 02	18	16 8 56 34	18 57 14 3	32 99
19	14 27 27 29	14 43 33 7	71 39	19	16 11 11 72	19 0 32 2	31 99
20	14 29 31 35	14 50 42 0	70 74	20	16 13 27 33	19 3 44 2	30 98
21	14 31 35 63	14 57 46 5	70 09	21	16 15 43 18	19 6 50 2	29 98
22	14 33 40 14	15 4 47 0	69 43	22	16 17 59 27	19 9 50 1	28 98
23	14 35 44 88	S. 15 11 43 6	68 76	23	16 20 15 58	S. 19 12 44 0	27 96
TUESDAY 6.				THURSDAY 8.			
0	14 37 49 85	S. 15 18 36 2	68 09	0	16 22 32 13	S. 19 15 31 7	26 92
1	14 39 55 05	15 25 24 7	67 41	1	16 24 48 91	19 18 13 2	25 89
2	14 42 0 49	15 32 9 2	66 72	2	16 27 5 91	19 20 48 6	24 85
3	14 44 6 16	15 38 49 5	66 02	3	16 29 23 15	19 23 17 7	23 80
4	14 46 12 07	15 45 25 7	65 32	4	16 31 40 61	19 25 40 5	22 75
5	14 48 18 21	15 51 57 6	64 61	5	16 33 58 29	19 27 57 9	21 69
6	14 50 24 59	15 58 25 2	63 89	6	16 36 16 19	19 30 7 2	20 63
7	14 52 31 21	16 4 48 5	63 16	7	16 38 34 32	19 32 10 9	19 55
8	14 54 38 07	16 11 7 5	62 43	8	16 40 52 66	19 34 8 2	18 48
9	14 56 45 17	16 17 22 0	61 68	9	16 43 11 23	19 35 59 1	17 40
10	14 58 52 50	16 23 32 1	60 93	10	16 45 30 00	19 37 43 5	16 31
11	15 1 0 08	16 29 37 7	60 18	11	16 47 49 00	19 39 21 4	15 21
12	15 3 7 91	16 35 38 7	59 41	12	16 50 8 20	19 40 52 6	14 11
13	15 5 15 97	16 41 35 2	58 64	13	16 52 27 61	19 42 17 3	13 00
14	15 7 24 28	16 47 27 0	57 86	14	16 54 47 23	19 43 35 3	11 89
15	15 9 32 83	16 53 14 2	57 07	15	16 57 7 06	19 44 45 6	10 77
16	15 11 41 63	16 58 56 7	56 28	16	16 59 27 08	19 45 51 3	9 65
17	15 13 50 67	17 4 34 4	55 48	17	17 1 47 31	19 46 49 2	8 52
18	15 15 59 95	17 10 7 2	54 67	18	17 4 7 74	19 47 40 3	7 39
19	15 18 9 48	17 15 35 2	53 85	19	17 6 28 37	19 48 24 7	6 25
20	15 20 19 25	17 20 58 4	53 03	20	17 8 49 18	19 49 2 2	5 10
21	15 22 29 27	17 26 16 5	52 19	21	17 11 10 19	19 49 32 8	3 95
22	15 24 39 54	17 31 29 7	51 35	22	17 13 31 39	19 49 56 5	2 80
23	15 26 50 05	17 36 37 8	50 50	23	17 15 52 78	19 50 13 3	1 64
24	15 29 0 81	S. 17 41 40 8		24	17 18 14 35	S. 19 50 23 2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 9.				SUNDAY 11.			
0	h m s 17 18 14.35	S. 19 50 23.2	0.48	0	h m s 19 14 8.89	S. 17 36 16.1	57.89
1	17 20 36.10	19 50 26.1	0.69	1	19 16 35.81	17 30 28.8	59.09
2	17 22 58.03	19 50 22.0	1.86	2	19 19 2.77	17 24 34.2	60.29
3	17 25 20.14	19 50 10.8	3.04	3	19 21 29.75	17 18 32.5	61.48
4	17 27 42.42	19 49 52.6	4.22	4	19 23 56.75	17 12 23.7	62.66
5	17 30 4.87	19 49 27.3	5.40	5	19 26 23.78	17 6 7.7	63.85
6	17 32 27.50	19 48 54.9	6.59	6	19 28 50.83	16 59 44.6	65.02
7	17 34 50.28	19 48 15.3	7.78	7	19 31 17.90	16 53 14.5	66.20
8	17 37 13.23	19 47 28.6	8.98	8	19 33 44.98	16 46 37.3	67.37
9	17 39 36.34	19 46 34.8	10.18	9	19 36 12.07	16 39 53.1	68.53
10	17 41 59.60	19 45 33.7	11.38	10	19 38 39.17	16 33 1.9	69.69
11	17 44 23.02	19 44 25.4	12.59	11	19 41 6.27	16 26 3.8	70.84
12	17 46 46.59	19 43 9.9	13.80	12	19 43 33.39	16 18 58.7	71.98
13	17 49 10.31	19 41 47.1	15.01	13	19 46 0.50	16 11 46.8	73.12
14	17 51 34.17	19 40 17.1	16.22	14	19 48 27.61	16 4 28.1	74.26
15	17 53 58.17	19 38 39.7	17.44	15	19 50 54.72	15 57 2.5	75.39
16	17 56 22.31	19 36 55.1	18.66	16	19 53 21.82	15 49 30.2	76.51
17	17 58 46.59	19 35 3.2	19.88	17	19 55 48.91	15 41 51.2	77.62
18	18 1 11.00	19 33 3.9	21.10	18	19 58 15.99	15 34 5.5	78.73
19	18 3 35.54	19 30 57.3	22.32	19	20 0 43.06	15 26 13.1	79.83
20	18 6 0.20	19 28 43.4	23.55	20	20 3 10.12	15 18 14.2	80.92
21	18 8 24.99	19 26 22.1	24.78	21	20 5 37.15	15 10 8.6	82.00
22	18 10 49.90	19 23 53.4	26.00	22	20 8 4.17	15 1 56.6	83.08
23	18 13 14.92	S. 19 21 17.4	27.23	23	20 10 31.16	S. 14 53 38.1	84.15
SATURDAY 10.				MONDAY 12.			
0	h m s 18 15 40.05	S. 19 18 34.0	28.46	0	h m s 20 12 58.13	S. 14 45 13.2	85.21
1	18 18 5.30	19 15 43.2	29.69	1	20 15 25.08	14 36 42.0	86.26
2	18 20 30.65	19 12 45.1	30.93	2	20 17 52.00	14 28 4.4	87.30
3	18 22 56.11	19 9 39.5	32.16	3	20 20 18.89	14 19 20.6	88.34
4	18 25 21.67	19 6 26.5	33.40	4	20 22 45.75	14 10 30.6	89.36
5	18 27 47.32	19 3 6.1	34.64	5	20 25 12.58	14 1 34.4	90.38
6	18 30 13.07	18 59 38.3	35.87	6	20 27 39.37	13 52 32.2	91.38
7	18 32 38.91	18 56 3.1	37.10	7	20 30 6.13	13 43 23.9	92.38
8	18 35 4.84	18 52 20.5	38.33	8	20 32 32.85	13 34 9.6	93.36
9	18 37 30.85	18 48 30.5	39.57	9	20 34 59.54	13 24 49.4	94.34
10	18 39 56.94	18 44 33.1	40.80	10	20 37 26.19	13 15 23.4	95.31
11	18 42 23.11	18 40 28.3	42.03	11	20 39 52.79	13 5 51.5	96.26
12	18 44 49.35	18 36 16.1	43.27	12	20 42 19.35	12 56 13.9	97.21
13	18 47 15.66	18 31 56.5	44.50	13	20 44 45.87	12 46 30.6	98.15
14	18 49 42.04	18 27 29.5	45.73	14	20 47 12.34	12 36 41.8	99.07
15	18 52 8.49	18 22 55.1	46.96	15	20 49 38.77	12 26 47.3	99.98
16	18 54 35.00	18 18 13.4	48.19	16	20 52 5.15	12 16 47.4	100.88
17	18 57 1.56	18 13 24.3	49.40	17	20 54 31.49	12 6 42.2	101.77
18	18 59 28.18	18 8 27.9	50.62	18	20 56 57.77	11 56 31.5	102.65
19	19 1 54.85	18 3 24.2	51.84	19	20 59 24.00	11 46 15.6	103.52
20	19 4 21.58	17 58 13.1	53.06	20	21 1 50.19	11 35 54.5	104.37
21	19 6 48.34	17 52 54.8	54.27	21	21 4 16.32	11 25 28.3	105.21
22	19 9 15.15	17 47 29.1	55.48	22	21 6 42.40	11 14 57.0	106.04
23	19 11 42.00	17 41 56.2	56.69	23	21 9 8.43	11 4 20.8	106.86
24	19 14 8.89	S. 17 36 16.1		24	21 11 34.41	S. 10 53 39.6	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 13.				THURSDAY 15.			
0	^h 21 ^m 11 ^s 34.41	S. 10 53 39.6	107.67	0	^h 23 ^m 7 ^s 18.97	S. 1 12 20.1	129.05
1	21 14 0.33	10 42 53.6	108.46	1	23 9 42.57	0 59 25.8	129.10
2	21 16 26.20	10 34 2.8	109.24	2	23 12 6.14	0 46 31.2	129.13
3	21 18 52.01	10 21 7.4	110.01	3	23 14 29.68	0 33 36.4	129.15
4	21 21 17.77	10 10 7.4	110.76	4	23 16 53.20	0 20 41.5	129.15
5	21 23 43.47	9 59 2.8	111.50	5	23 19 16.69	S. 0 7 46.6	129.14
6	21 26 9.12	9 47 53.8	112.22	6	23 21 40.16	N. 0 5 8.2	129.11
7	21 28 34.71	9 36 40.5	112.93	7	23 24 3.60	0 18 2.9	129.06
8	21 31 0.24	9 25 22.9	113.63	8	23 26 27.03	0 30 57.2	128.99
9	21 33 25.71	9 14 1.1	114.32	9	23 28 50.43	0 43 51.2	128.91
10	21 35 51.13	9 2 35.2	114.99	10	23 31 13.81	0 56 44.6	128.81
11	21 38 16.50	8 51 5.3	115.65	11	23 33 37.17	1 9 37.5	128.70
12	21 40 41.80	8 39 31.4	116.29	12	23 36 0.51	1 22 29.7	128.56
13	21 43 7.05	8 27 53.7	116.91	13	23 38 23.84	1 35 21.1	128.42
14	21 45 32.25	8 16 12.2	117.53	14	23 40 47.15	1 48 11.6	128.25
15	21 47 57.39	8 4 27.0	118.13	15	23 43 10.44	2 1 1.1	128.07
16	21 50 22.47	7 52 38.3	118.71	16	23 45 33.73	2 13 49.5	127.87
17	21 52 47.50	7 40 46.0	119.28	17	23 47 57.00	2 26 36.8	127.66
18	21 55 12.47	7 28 50.4	119.83	18	23 50 20.26	2 39 22.7	127.43
19	21 57 37.39	7 16 51.4	120.37	19	23 52 43.51	2 52 7.3	127.19
20	22 0 2.25	7 4 49.2	120.89	20	23 55 6.75	3 4 50.5	126.93
21	22 2 27.06	6 52 43.8	121.40	21	23 57 29.98	3 17 32.0	126.65
22	22 4 51.82	6 40 35.4	121.89	22	23 59 53.20	3 30 11.9	126.36
23	22 7 16.52	S. 6 28 24.1	122.37	23	0 2 16.42	N. 3 42 50.1	126.05
WEDNESDAY 14.				FRIDAY 16.			
0	22 9 41.17	S. 6 16 9.8	122.83	0	0 4 39.63	N. 3 55 26.4	125.73
1	22 12 5.77	6 3 52.8	123.28	1	0 7 2.84	4 8 0.8	125.39
2	22 14 30.32	5 51 33.2	123.71	2	0 9 26.05	4 20 33.1	125.03
3	22 16 54.82	5 39 10.9	124.12	3	0 11 49.25	4 33 3.2	124.66
4	22 19 19.26	5 26 46.2	124.52	4	0 14 12.45	4 45 31.2	124.27
5	22 21 43.66	5 14 19.1	124.90	5	0 16 35.66	4 57 56.8	123.87
6	22 24 8.01	5 1 49.7	125.27	6	0 18 58.86	5 10 20.0	123.45
7	22 26 32.32	4 49 18.1	125.62	7	0 21 22.06	5 22 40.7	123.02
8	22 28 56.57	4 36 44.4	125.95	8	0 23 45.27	5 34 58.8	122.57
9	22 31 20.78	4 24 8.7	126.27	9	0 26 8.48	5 47 14.3	122.11
10	22 33 44.94	4 11 31.0	126.57	10	0 28 31.69	5 59 26.9	121.63
11	22 36 9.06	3 58 51.6	126.85	11	0 30 54.91	6 11 36.7	121.14
12	22 38 33.13	3 46 10.5	127.12	12	0 33 18.13	6 23 43.4	120.63
13	22 40 57.16	3 33 27.8	127.37	13	0 35 41.35	6 35 47.2	120.10
14	22 43 21.15	3 20 43.6	127.61	14	0 38 4.58	6 47 47.8	119.57
15	22 45 45.10	3 7 57.9	127.83	15	0 40 27.82	6 59 45.2	119.02
16	22 48 9.01	2 55 11.0	128.03	16	0 42 51.06	7 11 39.3	118.45
17	22 50 32.88	2 42 22.8	128.21	17	0 45 14.31	7 23 30.0	117.87
18	22 52 56.71	2 29 33.5	128.38	18	0 47 37.57	7 35 17.2	117.28
19	22 55 20.51	2 16 43.3	128.53	19	0 50 0.83	7 47 0.9	116.67
20	22 57 44.27	2 3 52.1	128.67	20	0 52 24.10	7 58 40.9	116.05
21	23 0 7.99	1 51 0.0	128.79	21	0 54 47.39	8 10 17.3	115.42
22	23 2 31.68	1 38 7.3	128.89	22	0 57 10.68	8 21 49.8	114.77
23	23 4 55.34	1 25 14.0	128.98	23	0 59 33.98	8 33 18.4	114.12
24	23 7 18.97	S. 1 12 20.1		24	1 1 57.29	N. 8 44 43.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 17.				MONDAY 19.			
0	h m s	N. 8 44 43.1	113.45	0	h m s	N. 16 13 6.3	69.06
1	1 57.29	8 56 3.8	112.76	1	2 56 40.50	16 20 0.7	67.96
2	1 4 20.61	9 7 20.3	112.06	2	3 59 3.60	16 26 48.4	66.85
3	1 6 43.94	9 18 34.7	111.35	3	1 26.67	16 33 29.5	65.74
4	1 9 7.28	9 29 40.8	110.63	4	3 3 49.70	16 40 3.9	64.62
5	1 11 30.63	9 40 44.6	109.89	5	3 6 12.68	16 46 31.6	63.50
6	1 13 53.99	9 51 43.9	109.15	6	3 8 35.62	16 52 52.6	62.37
7	1 16 17.36	10 2 38.8	108.39	7	3 10 58.52	16 59 6.8	61.25
8	1 18 40.74	10 13 29.1	107.62	8	3 13 21.37	17 5 14.3	60.12
9	1 21 4.13	10 24 14.8	106.83	9	3 15 44.16	17 11 15.0	58.98
10	1 23 27.53	10 34 55.8	106.04	10	3 18 6.91	17 17 8.9	57.83
11	1 25 50.94	10 45 32.1	105.23	11	3 20 29.60	17 22 55.9	56.71
12	1 28 14.36	10 56 3.4	104.42	12	3 22 52.23	17 28 36.2	55.57
13	1 30 37.79	11 6 29.9	103.59	13	3 25 14.81	17 34 9.6	54.42
14	1 33 1.23	11 16 51.4	102.75	14	3 27 37.32	17 39 36.1	53.27
15	1 35 24.67	11 27 7.9	101.90	15	3 29 59.78	17 44 55.8	52.12
16	1 37 48.12	11 37 19.3	101.04	16	3 32 22.16	17 50 8.5	50.97
17	1 40 11.58	11 47 25.5	100.17	17	3 34 44.48	17 55 14.3	49.82
18	1 42 35.05	11 57 26.6	99.29	18	3 37 6.73	18 0 13.3	48.67
19	1 44 58.52	12 7 22.3	98.40	19	3 39 28.90	18 5 5.3	47.51
20	1 47 22.00	12 17 12.7	97.50	20	3 41 51.00	18 10 50.4	46.36
21	1 49 45.48	12 26 57.7	96.59	21	3 44 13.02	18 14 28.5	45.20
22	1 52 8.97	12 36 37.2	95.67	22	3 46 34.96	18 18 59.7	44.04
23	1 54 32.46	N. 12 46 11.2	94.74	23	3 48 56.82	N. 18 23 24.0	42.88
24	1 56 55.95						
SUNDAY 18.				TUESDAY 20.			
0	1 59 19.44	N. 12 55 39.7	93.80	0	3 53 40.29	N. 18 27 42.3	41.73
1	2 1 42.93	13 5 2.5	92.86	1	3 56 1.89	18 31 51.7	40.57
2	2 4 6.42	13 14 19.7	91.90	2	3 58 23.40	18 35 55.1	39.41
3	2 6 29.91	13 23 31.1	90.94	3	4 0 44.81	18 39 51.5	38.25
4	2 8 53.40	13 32 36.8	89.97	4	4 3 6.21	18 43 41.0	37.09
5	2 11 16.88	13 41 36.6	88.99	5	4 5 27.34	18 47 23.6	35.93
6	2 13 40.36	13 50 30.5	88.00	6	4 7 48.45	18 50 59.2	34.77
7	2 16 3.83	13 59 18.5	87.00	7	4 10 9.46	18 54 27.8	33.62
8	2 18 27.30	14 8 0.5	86.00	8	4 12 30.36	18 57 49.5	32.46
9	2 20 50.75	14 16 36.5	84.99	9	4 14 51.15	19 1 4.3	31.30
10	2 23 14.20	14 25 6.5	83.97	10	4 17 11.83	19 4 12.1	30.15
11	2 25 37.63	14 33 30.3	82.95	11	4 19 32.39	19 7 12.9	28.99
12	2 28 1.05	14 41 47.9	81.91	12	4 21 52.84	19 10 6.8	27.84
13	2 30 24.46	14 49 59.4	80.87	13	4 24 13.17	19 12 53.8	26.69
14	2 32 47.85	14 58 4.6	79.83	14	4 26 33.37	19 15 34.0	25.54
15	2 35 11.22	15 6 3.6	78.78	15	4 28 53.45	19 18 7.2	24.39
16	2 37 34.57	15 13 56.3	77.72	16	4 31 13.41	19 20 33.5	23.24
17	2 39 57.90	15 21 42.6	76.66	17	4 33 33.24	19 22 53.0	22.10
18	2 42 21.21	15 29 22.5	75.59	18	4 35 52.93	19 25 5.6	20.96
19	2 44 44.50	15 36 56.1	74.51	19	4 38 12.49	19 27 11.4	19.82
20	2 47 7.76	15 44 23.1	73.43	20	4 40 31.92	19 29 10.3	18.68
21	2 49 30.99	15 51 43.7	72.35	21	4 42 51.20	19 31 2.3	17.54
22	2 51 54.19	15 58 57.8	71.26	22	4 45 10.35	19 32 47.6	16.41
23	2 54 17.37	16 6 5.3	70.16	23	4 47 29.35	19 34 26.1	15.28
24	2 56 40.50	N. 16 13 6.3		24	4 49 48.21	N. 19 35 57.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 21.				FRIDAY 23.			
0	4 49 48 ²¹	N. 19 35 57 ⁷	14 ¹⁵	0	6 37 25 ⁵²	N. 18 44 1 ³	34 ⁹³
1	4 52 6 ⁹²	19 37 22 ⁶	13 ⁰³	1	6 39 35 ¹⁵	18 40 31 ⁷	35 ⁸²
2	4 54 25 ⁴⁸	19 38 40 ⁸	11 ⁹⁰	2	6 41 44 ⁵⁶	18 36 56 ⁸	36 ⁷¹
3	4 56 43 ³⁹	19 39 52 ²	10 ⁷⁹	3	6 43 53 ⁷⁶	18 33 16 ⁶	37 ⁵⁹
4	4 59 2 ¹⁴	19 40 56 ⁹	9 ⁶⁷	4	6 46 2 ⁷⁵	18 29 31 ⁰	38 ⁴⁶
5	5 1 20 ²⁴	19 41 54 ⁹	8 ⁵⁶	5	6 48 11 ⁵²	18 25 40 ³	39 ³²
6	5 3 38 ¹⁷	19 42 46 ³	7 ⁴⁵	6	6 50 20 ⁰⁸	18 21 44 ⁴	40 ¹⁸
7	5 5 55 ⁹⁵	19 43 31 ⁰	6 ³⁴	7	6 52 28 ⁴²	18 17 43 ³	41 ⁰⁴
8	5 8 13 ⁵⁷	19 44 9 ¹	5 ²⁴	8	6 54 36 ⁵⁵	18 13 37 ⁰	41 ⁸⁸
9	5 10 31 ⁰²	19 44 40 ⁵	4 ¹⁵	9	6 56 44 ⁴⁶	18 9 25 ⁷	42 ⁷³
10	5 12 48 ³⁰	19 45 5 ⁴	3 ⁰⁵	10	6 58 52 ¹⁶	18 5 9 ⁴	43 ⁵⁶
11	5 15 5 ⁴²	19 45 23 ⁷	1 ⁹⁶	11	7 0 59 ⁶⁵	18 0 48 ⁰	44 ³⁹
12	5 17 22 ³⁶	19 45 35 ⁵	0 ⁸⁸	12	7 3 6 ⁹¹	17 56 21 ⁷	45 ²²
13	5 19 39 ¹³	19 45 40 ⁸	0 ²⁰	13	7 5 13 ⁹⁶	17 51 50 ⁴	46 ⁰³
14	5 21 55 ⁷³	19 45 39 ⁶	1 ²⁸	14	7 7 20 ⁸⁰	17 47 14 ²	46 ⁸⁴
15	5 24 12 ¹⁵	19 45 31 ⁹	2 ³⁵	15	7 9 27 ⁴³	17 42 33 ²	47 ⁶⁵
16	5 26 28 ³⁹	19 45 17 ⁸	3 ⁴²	16	7 11 33 ⁸⁴	17 37 47 ³	48 ⁴⁵
17	5 28 44 ⁴⁵	19 44 57 ²	4 ⁴⁹	17	7 13 40 ⁰⁴	17 32 56 ⁶	49 ²⁴
18	5 31 0 ³³	19 44 30 ³	5 ⁵⁵	18	7 15 46 ⁰³	17 28 1 ²	50 ⁰²
19	5 33 16 ⁰³	19 43 57 ⁰	6 ⁶⁰	19	7 17 51 ⁸⁰	17 23 1 ¹	50 ⁸⁰
20	5 35 31 ⁵⁴	19 43 17 ⁴	7 ⁶⁵	20	7 19 57 ³⁶	17 17 56 ²	51 ⁵⁹
21	5 37 46 ³⁷	19 42 31 ⁵	8 ⁷⁰	21	7 22 2 ⁷²	17 12 46 ⁸	52 ³⁴
22	5 40 2 ⁰⁰	19 41 39 ³	9 ⁷⁴	22	7 24 7 ⁸⁶	17 7 32 ⁸	53 ¹⁰
23	5 42 16 ⁰⁵	N. 19 40 40 ⁹	10 ⁷⁷	23	7 26 12 ⁷⁹	N. 17 2 14 ¹	53 ⁸⁶
THURSDAY 22.				SATURDAY 24.			
0	5 44 31 ⁷¹	N. 19 39 36 ²	11 ⁸¹	0	7 28 17 ⁵¹	N. 16 56 51 ⁰	54 ⁸⁰
1	5 46 46 ²⁸	19 38 25 ³	12 ⁸⁴	1	7 30 22 ⁰²	16 51 23 ⁴	55 ³⁴
2	5 49 0 ⁶⁵	19 37 8 ³	13 ⁸⁶	2	7 32 26 ³²	16 45 51 ⁴	56 ⁰⁷
3	5 51 14 ⁸²	19 35 45 ²	14 ⁸⁸	3	7 34 30 ⁴²	16 40 14 ⁹	56 ⁸⁰
4	5 53 28 ⁸¹	19 34 15 ⁹	15 ⁸⁹	4	7 36 34 ³¹	16 34 34 ¹	57 ³³
5	5 55 42 ⁵⁹	19 32 40 ⁶	16 ⁸⁹	5	7 38 37 ⁹⁹	16 28 48 ⁹	58 ⁴⁴
6	5 57 56 ¹⁷	19 30 59 ²	17 ⁸⁹	6	7 40 41 ⁴⁷	16 22 59 ⁵	58 ⁹⁵
7	6 0 9 ⁵⁶	19 29 11 ⁹	18 ⁸⁸	7	7 42 44 ⁷⁵	16 17 5 ⁷	59 ⁶⁵
8	6 2 22 ⁷⁴	19 27 18 ⁶	19 ⁸⁷	8	7 44 47 ⁸²	16 11 7 ⁸	60 ³⁵
9	6 4 35 ⁷²	19 25 19 ³	20 ⁸⁶	9	7 46 50 ⁶⁹	16 5 5 ⁷	61 ⁰⁴
10	6 6 48 ⁵⁰	19 23 14 ²	21 ⁸⁴	10	7 48 53 ³⁶	15 58 59 ⁴	61 ⁷³
11	6 9 1 ⁰⁷	19 21 3 ²	22 ⁸¹	11	7 50 55 ⁸³	15 52 49 ⁰	62 ⁴¹
12	6 11 13 ⁴⁴	19 18 46 ³	23 ⁷⁸	12	7 52 58 ¹⁰	15 46 34 ⁶	63 ⁰⁸
13	6 13 25 ⁶⁰	19 16 23 ⁶	24 ⁷⁴	13	7 55 0 ¹⁷	15 40 16 ¹	63 ⁷⁵
14	6 15 37 ⁵⁵	19 13 55 ²	25 ⁷⁰	14	7 57 2 ⁰⁵	15 33 53 ⁶	64 ⁴⁰
15	6 17 49 ³⁰	19 11 21 ⁰	26 ⁶⁵	15	7 59 3 ⁷³	15 27 27 ²	65 ⁰⁶
16	6 20 0 ⁸³	19 8 41 ¹	27 ⁵⁹	16	8 1 5 ²²	15 20 56 ⁹	65 ⁷¹
17	6 22 12 ¹⁶	19 5 55 ⁶	28 ⁵³	17	8 3 6 ⁵¹	15 14 22 ⁶	66 ³⁵
18	6 24 23 ²⁸	19 3 4 ⁵	29 ⁴⁶	18	8 5 7 ⁶²	15 7 44 ⁵	66 ⁹⁸
19	6 26 34 ¹⁸	19 0 7 ⁷	30 ³⁹	19	8 7 8 ⁵³	15 1 2 ⁶	67 ⁶¹
20	6 28 44 ⁸⁷	18 57 5 ⁴	31 ³⁰	20	8 9 9 ²⁶	14 54 17 ⁰	68 ²³
21	6 30 55 ³⁶	18 53 57 ⁶	32 ²²	21	8 11 9 ⁷⁹	14 47 27 ⁶	68 ⁸⁵
22	6 33 5 ⁶³	18 50 44 ²	33 ¹³	22	8 13 10 ¹⁴	14 40 34 ⁵	69 ⁴⁶
23	6 35 15 ⁶⁸	18 47 25 ⁵	34 ⁰³	23	8 15 10 ³¹	14 33 37 ⁷	70 ⁰⁶
24	6 37 25 ⁵²	N. 18 44 1 ³		24	8 17 10 ²⁹	N. 14 26 37 ⁴	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 25.				TUESDAY 27.			
0	^h 8 ^m 17 ^s 10.29	N. 14 26 37.4	70.66	0	^h 9 ^m 50 ^s 8.06	N. 7 51 17.3	92.23
1	8 19 10.09	14 19 33.5	71.25	1	9 52 1.30	7 42 3.9	92.54
2	8 21 9.71	14 12 26.0	71.83	2	9 53 54.44	7 32 48.7	92.84
3	8 23 9.15	14 5 15.0	72.41	3	9 55 47.51	7 23 31.7	93.13
4	8 25 8.42	13 58 0.5	72.98	4	9 57 40.50	7 14 12.9	93.42
5	8 27 7.51	13 50 42.6	73.55	5	9 59 33.40	7 4 52.4	93.70
6	8 29 6.42	13 43 21.3	74.11	6	10 1 26.23	6 55 30.3	93.97
7	8 31 5.17	13 35 56.6	74.66	7	10 3 18.99	6 46 6.4	94.24
8	8 33 3.74	13 28 28.6	75.21	8	10 5 11.68	6 36 41.0	94.51
9	8 35 2.14	13 20 57.3	75.75	9	10 7 4.30	6 27 13.9	94.76
10	8 37 0.38	13 13 22.8	76.29	10	10 8 56.85	6 17 45.4	95.02
11	8 38 58.45	13 5 45.1	76.82	11	10 10 49.34	6 8 15.3	95.26
12	8 40 56.35	12 58 4.2	77.34	12	10 12 41.76	5 58 43.7	95.50
13	8 42 54.10	12 50 20.1	77.86	13	10 14 34.13	5 49 10.7	95.74
14	8 44 51.68	12 42 33.0	78.37	14	10 16 26.44	5 39 36.3	95.97
15	8 46 49.11	12 34 42.7	78.88	15	10 18 18.69	5 30 0.5	96.19
16	8 48 46.37	12 26 49.4	79.38	16	10 20 10.90	5 20 23.3	96.40
17	8 50 43.49	12 18 53.1	79.87	17	10 22 3.05	5 10 44.9	96.61
18	8 52 40.45	12 10 53.9	80.36	18	10 23 55.16	5 1 5.2	96.82
19	8 54 37.26	12 2 51.7	80.84	19	10 25 47.22	4 51 24.3	97.02
20	8 56 33.92	11 54 46.7	81.32	20	10 27 39.24	4 41 42.1	97.21
21	8 58 30.43	11 46 38.8	81.79	21	10 29 31.21	4 31 58.9	97.40
22	9 0 26.80	11 38 28.0	82.25	22	10 31 23.15	4 22 14.5	97.58
23	9 2 23.02	N. 11 30 14.5	82.71	23	10 33 15.06	N. 4 12 28.9	97.76
MONDAY 26.				WEDNESDAY 28.			
0	9 4 19.11	N. 11 21 58.3	83.16	0	10 35 6.93	N. 4 2 42.4	97.93
1	9 6 15.05	11 13 39.4	83.61	1	10 36 58.77	3 52 54.8	98.09
2	9 8 10.86	11 5 17.7	84.05	2	10 38 50.58	3 43 6.2	98.26
3	9 10 6.53	10 56 53.5	84.47	3	10 40 42.37	3 33 16.7	98.41
4	9 12 2.06	10 48 26.6	84.90	4	10 42 34.14	3 23 26.3	98.55
5	9 13 57.46	10 39 57.2	85.33	5	10 44 25.88	3 13 34.9	98.69
6	9 15 52.74	10 31 25.2	85.74	6	10 46 17.61	3 3 42.8	98.83
7	9 17 47.89	10 22 50.8	86.15	7	10 48 9.32	2 53 49.8	98.95
8	9 19 42.91	10 14 13.8	86.56	8	10 50 1.01	2 43 56.1	99.08
9	9 21 37.81	10 5 34.5	86.96	9	10 51 52.70	2 34 1.6	99.19
10	9 23 32.59	9 56 52.7	87.35	10	10 53 44.37	2 24 6.5	99.30
11	9 25 27.25	9 48 8.6	87.74	11	10 55 36.04	2 14 10.6	99.41
12	9 27 21.79	9 39 22.2	88.11	12	10 57 27.70	2 4 14.2	99.51
13	9 29 16.22	9 30 33.5	88.49	13	10 59 19.36	1 54 17.1	99.60
14	9 31 10.54	9 21 42.6	88.86	14	11 1 11.03	1 44 19.5	99.69
15	9 33 4.75	9 12 49.5	89.22	15	11 3 2.70	1 34 21.4	99.77
16	9 34 58.85	9 3 54.1	89.58	16	11 4 54.37	1 24 22.7	99.85
17	9 36 52.85	8 54 56.7	89.93	17	11 6 46.05	1 14 23.7	99.91
18	9 38 46.74	8 45 57.1	90.28	18	11 8 37.75	1 4 24.2	99.97
19	9 40 40.53	8 36 55.5	90.62	19	11 10 29.46	0 54 24.3	100.03
20	9 42 34.23	8 27 51.8	90.95	20	11 12 21.18	0 44 24.1	100.08
21	9 44 27.82	8 18 46.1	91.28	21	11 14 12.92	0 34 23.6	100.13
22	9 46 21.32	8 9 38.4	91.60	22	11 16 4.68	0 24 22.9	100.16
23	9 48 14.74	8 0 28.8	91.92	23	11 17 56.46	0 14 21.9	100.19
24	9 50 8.06	N. 7 51 17.3		24	11 19 48.27	N. 0 4 20.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 29.				FRIDAY 30.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	11 19 48.27	N. 0 4 20.7	100.23	0	12 4 45.51	S. 3 55 27.9	98.96
1	11 21 40.11	S. 0 5 40.7	100.25	1	12 6 38.73	4 5 21.7	98.83
2	11 23 31.97	0 15 42.1	100.26	2	12 8 32.04	4 15 14.6	98.68
3	11 25 23.87	0 25 43.7	100.27	3	12 10 25.43	4 25 6.7	98.53
4	11 27 15.80	0 35 45.3	100.27	4	12 12 18.92	4 34 57.9	98.38
5	11 29 7.77	0 45 46.9	100.26	5	12 14 12.50	4 44 48.2	98.22
6	11 30 59.79	0 55 48.4	100.25	6	12 16 6.18	4 54 37.6	98.06
7	11 32 51.84	1 5 49.9	100.23	7	12 17 59.95	5 4 25.9	97.88
8	11 34 43.94	1 15 51.3	100.21	8	12 19 53.83	5 14 13.2	97.70
9	11 36 36.08	1 25 52.6	100.18	9	12 21 47.80	5 23 59.4	97.51
10	11 38 28.27	1 35 53.6	100.14	10	12 23 41.89	5 33 44.5	97.32
11	11 40 20.52	1 45 54.4	100.10	11	12 25 36.08	5 43 28.4	97.12
12	11 42 12.82	1 55 55.0	100.05	12	12 27 30.38	5 53 11.1	96.92
13	11 44 5.18	2 5 55.3	99.99	13	12 29 24.79	6 2 52.6	96.70
14	11 45 57.60	2 15 55.3	99.93	14	12 31 19.32	6 12 32.8	96.48
15	11 47 50.07	2 25 54.8	99.86	15	12 33 13.96	6 22 11.7	96.26
16	11 49 42.61	2 35 54.0	99.79	16	12 35 8.72	6 31 49.3	96.02
17	11 51 35.22	2 45 52.7	99.71	17	12 37 3.60	6 41 25.4	95.78
18	11 53 27.90	2 55 51.0	99.62	18	12 38 58.60	6 51 0.0	95.53
19	11 55 20.64	3 5 48.7	99.52	19	12 40 53.72	7 0 33.2	95.27
20	11 57 13.46	3 15 45.8	99.42	20	12 42 48.98	7 10 4.8	95.01
21	11 59 6.36	3 25 42.4	99.32	21	12 44 44.36	7 19 34.9	94.74
22	12 0 59.33	3 35 38.3	99.20	22	12 46 39.87	7 29 3.3	94.46
23	12 2 52.38	3 45 33.5	99.08	23	12 48 35.51	7 38 30.1	94.17
24	12 4 45.51	S. 3 55 27.9		24	12 50 31.29	S. 7 47 55.1	

PHASES OF THE MOON.

		^d ^h ^m
☾	First Quarter	- - - - - 8 17 50.4
○	Full Moon	- - - - - 15 9 9.1
☾	Last Quarter	- - - - - 22 6 54.0
●	New Moon	- - - - - 30 10 43.1

		^d ^h
☾	Perigee	- - - - - 14 20
☾	Apogee	- - - - - 27 17

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
3	SUN W.	24 37 18	3478	25 58 7	3468	27 19 7	3457	28 40 20	3447
	Jupiter E.	45 49 32	3085	44 21 4	3081	42 52 31	3077	41 23 53	3073
	Antares E.	62 6 14	3077	60 37 36	3073	59 8 54	3070	57 40 8	3068
	α Aquilæ E.	112 29 16	3511	111 9 4	3498	109 48 38	3485	108 27 57	3473
4	SUN W.	35 29 1	3401	36 51 16	3393	38 13 40	3385	39 36 14	3375
	Jupiter E.	33 59 18	3047	32 30 4	3041	31 0 42	3036	29 31 14	3029
	Antares E.	50 15 25	3052	48 46 17	3048	47 17 4	3046	45 47 48	3043
	α Aquilæ E.	101 41 17	3418	100 19 21	3408	98 57 13	3399	97 34 55	3389
5	SUN W.	46 31 39	3330	47 55 16	3320	49 19 5	3311	50 43 4	3300
	Antares E.	38 20 32	3030	36 50 56	3028	35 21 17	3027	33 51 38	3026
	α Aquilæ E.	90 40 51	3347	89 17 34	3339	87 54 8	3332	86 30 33	3325
6	SUN W.	57 46 5	3246	59 11 20	3234	60 36 49	3221	62 2 33	3210
	Saturn W.	25 21 15	2978	26 51 55	2961	28 22 57	2945	29 54 19	2928
	Spica W.	20 1 34	2878	21 34 27	2864	23 7 32	2853	24 40 52	2842
	α Aquilæ E.	79 30 40	3293	78 6 20	3287	76 41 53	3282	75 17 20	3277
	Fomalhaut E.	108 43 58	3386	107 21 26	3368	105 58 33	3350	104 35 19	3332
7	SUN W.	69 14 55	3144	70 42 11	3130	72 9 44	3115	73 37 35	3101
	Saturn W.	37 36 5	2853	39 9 24	2838	40 43 2	2824	42 16 59	2808
	Spica W.	32 31 11	2783	34 6 1	2769	35 41 9	2757	37 16 33	2744
	α Aquilæ E.	68 13 26	3261	66 48 29	3260	65 23 31	3259	63 58 32	3260
	Fomalhaut E.	97 34 7	3249	96 8 56	3233	94 43 26	3218	93 17 38	3203
8	SUN W.	81 1 23	3023	82 31 7	3008	84 1 10	2991	85 31 34	2974
	Saturn W.	50 11 46	2731	51 47 45	2715	53 24 5	2699	55 0 47	2683
	Spica W.	45 18 8	2672	46 55 25	2658	48 33 1	2643	50 10 58	2627
	Jupiter W.	15 5 51	2722	16 42 2	2707	18 18 33	2691	19 55 25	2675
	α Aquilæ E.	56 54 16	3283	55 29 44	3292	54 5 23	3303	52 41 15	3317
	Fomalhaut E.	86 4 26	3135	84 36 59	3123	83 9 17	3111	81 41 21	3100
	α Pegasi E.	102 55 11	2842	101 21 37	2825	99 47 41	2808	98 13 23	2791
9	SUN W.	93 8 57	2887	94 41 32	2870	96 14 30	2852	97 47 51	2833
	Saturn W.	63 9 47	2599	64 48 43	2582	66 28 3	2564	68 7 47	2547
	Spica W.	58 26 3	2547	60 6 11	2531	61 46 41	2514	63 27 35	2497
	Jupiter W.	28 5 3	2594	29 44 6	2578	31 23 31	2561	33 3 19	2545
	Antares W.	14 33 27	3048	16 2 40	2940	17 34 8	2853	19 7 27	2783
	Fomalhaut E.	74 18 24	3051	72 49 14	3044	71 19 56	3038	69 50 30	3032
	α Pegasi E.	90 16 25	2708	88 39 56	2691	87 3 4	2675	85 25 51	2660
10	SUN W.	105 40 34	2741	107 16 19	2723	108 52 28	2704	110 29 2	2686
	Saturn W.	76 32 28	2460	78 14 38	2442	79 57 13	2424	81 40 13	2407
	Spica W.	71 58 3	2411	73 41 22	2394	75 25 5	2377	77 9 13	2360
	Jupiter W.	41 28 16	2458	43 10 28	2440	44 53 5	2423	46 36 7	2406
	Antares W.	27 12 57	2557	28 52 51	2524	30 33 30	2494	32 14 52	2466
	Fomalhaut E.	62 22 9	3025	60 52 27	3029	59 22 50	3035	57 53 20	3043
	α Pegasi E.	77 14 25	2582	75 35 5	2568	73 55 26	2553	72 15 26	2539
	α Arietis E.	120 37 1	2490	118 55 34	2471	117 13 40	2452	115 31 19	2432
11	SUN W.	118 37 59	2596	120 17 0	2579	121 56 24	2561	123 36 12	2545
	Saturn W.	90 21 26	2321	92 6 55	2304	93 52 48	2288	95 39 5	2271
	Spica W.	85 56 7	2274	87 42 44	2257	89 29 46	2241	91 17 12	2225

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
3	SUN W.	30 1 43	3438	31 23 17	3428	32 45 2	3420	34 6 56	3410
	Jupiter E.	39 55 10	3068	38 26 21	3063	36 57 26	3058	35 28 25	3053
	Antares E.	56 11 19	3065	54 42 27	3061	53 13 30	3059	51 44 30	3055
	α Aquilæ E.	107 7 3	3461	105 45 56	3449	104 24 35	3438	103 3 2	3428
4	SUN W.	40 58 59	3367	42 21 53	3358	43 44 58	3349	45 8 13	3339
	Jupiter E.	28 1 37	3023	26 31 53	3016	25 2 0	3009	23 31 58	3001
	Antares E.	44 18 28	3039	42 49 4	3037	41 19 37	3034	39 50 6	3031
	α Aquilæ E.	96 12 26	3380	94 49 47	3371	93 26 58	3363	92 3 59	3355
5	SUN W.	52 7 16	3290	53 31 39	3279	54 56 15	3268	56 21 4	3258
	Antares E.	32 21 57	3027	30 52 18	3029	29 22 41	3032	27 53 8	3037
	α Aquilæ E.	85 6 50	3318	83 42 59	3311	82 19 0	3305	80 54 54	3298
6	SUN W.	63 28 30	3197	64 54 43	3184	66 21 11	3171	67 47 55	3157
	Saturn W.	31 26 2	2913	32 58 4	2898	34 30 25	2883	36 3 5	2868
	Spica W.	26 14 26	2831	27 48 14	2819	29 22 18	2808	30 56 36	2795
	α Aquilæ E.	73 52 42	3273	72 27 59	3269	71 3 11	3266	69 38 20	3264
	Fomalhaut E.	103 11 44	3314	101 47 49	3297	100 23 34	3281	98 59 0	3264
7	SUN W.	75 5 43	3086	76 34 10	3071	78 2 55	3056	79 31 59	3039
	Saturn W.	43 51 16	2792	45 25 54	2778	47 0 51	2763	48 36 8	2747
	Spica W.	38 52 15	2729	40 28 16	2716	42 4 34	2702	43 41 12	2688
	α Aquilæ E.	62 33 34	3262	61 8 38	3265	59 43 45	3269	58 18 57	3275
	Fomalhaut E.	91 51 33	3189	90 25 11	3175	88 58 32	3162	87 31 37	3148
8	SUN W.	87 2 20	2957	88 33 26	2940	90 4 54	2922	91 36 45	2905
	Saturn W.	56 37 50	2666	58 15 15	2649	59 53 3	2633	61 31 13	2615
	Spica W.	51 49 16	2612	53 27 55	2596	55 6 55	2580	56 46 18	2564
	Jupiter W.	21 32 38	2660	23 10 11	2643	24 48 7	2628	26 26 24	2612
	α Aquilæ E.	51 17 23	3334	49 53 51	3354	48 30 42	3378	47 8 1	3407
	Fomalhaut E.	80 13 11	3088	78 44 47	3078	77 16 11	3069	75 47 23	3060
	α Pegasi E.	96 38 43	2774	95 3 41	2758	93 28 18	2741	91 52 32	2725
9	SUN W.	99 21 36	2815	100 55 45	2797	102 30 17	2779	104 5 13	2760
	Saturn W.	69 47 55	2530	71 28 26	2512	73 9 22	2494	74 50 43	2477
	Spica W.	65 8 53	2480	66 50 34	2463	68 32 39	2446	70 15 9	2429
	Jupiter W.	34 43 30	2527	36 24 6	2510	38 5 5	2493	39 46 28	2475
	Antares W.	20 42 17	2725	22 18 24	2675	23 55 38	2631	25 33 51	2592
	Fomalhaut E.	68 20 56	3028	66 51 18	3025	65 21 37	3023	63 51 53	3023
	α Pegasi E.	83 48 17	2643	82 10 21	2627	80 32 3	2612	78 53 25	2596
10	SUN W.	112 6 1	2668	113 43 24	2650	115 21 11	2632	116 59 23	2614
	Saturn W.	83 23 38	2389	85 7 28	2373	86 51 42	2355	88 36 22	2338
	Spica W.	78 53 46	2342	80 38 44	2325	82 24 7	2309	84 9 54	2291
	Jupiter W.	48 19 33	2389	50 3 24	2371	51 47 40	2354	53 32 21	2337
	Antares W.	33 56 52	2440	35 39 30	2415	37 22 44	2391	39 6 32	2368
	Fomalhaut E.	56 24 0	3055	54 54 55	3069	53 26 7	3086	51 57 40	3108
	α Pegasi E.	70 35 7	2526	68 54 30	2514	67 13 36	2501	65 32 24	2490
	α Arietis E.	113 48 29	2413	112 5 13	2394	110 21 30	2375	108 37 19	2357
11	SUN W.	125 16 23	2528	126 56 57	2512	128 37 54	2496	130 19 13	2481
	Saturn W.	97 25 47	2256	99 12 51	2240	101 0 19	2225	102 48 10	2210
	Spica W.	93 5 2	2209	94 53 16	2194	96 41 53	2179	98 30 53	2163

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
11	Jupiter W.	55 17 26	2320	57 2 56	2304	58 48 50	2287	60 35 9	2271
	Antares W.	40 50 53	2346	42 35 46	2324	44 21 10	2304	46 7 4	2285
	Fomalhaut E.	50 29 40	2334	49 2 12	2366	47 35 22	2303	46 9 16	2347
	α Pegasi E.	63 50 57	2479	62 9 14	2469	60 27 18	2460	58 45 9	2453
	α Arietis E.	106 52 43	2339	105 7 40	2322	103 22 12	2304	101 36 18	2287
12	Saturn W.	104 36 23	2195	106 24 58	2181	108 13 54	2167	110 3 11	2154
	Spica W.	100 20 16	2149	102 10 1	2134	104 0 8	2120	105 50 36	2107
	Jupiter W.	69 32 35	2194	71 21 12	2180	73 10 10	2165	74 59 30	2152
	Antares W.	55 3 32	2194	56 52 8	2178	58 41 9	2163	60 30 32	2147
	α Pegasi E.	50 12 22	2437	48 29 40	2439	46 47 1	2445	45 4 30	2453
	α Arietis E.	92 40 47	2208	90 52 32	2194	89 3 56	2180	87 14 58	2167
13	Jupiter W.	84 11 1	2092	86 2 12	2082	87 53 39	2072	89 45 21	2063
	Antares W.	69 42 52	2083	71 34 18	2072	73 26 1	2062	75 17 59	2052
	α Pegasi E.	36 36 34	2558	34 56 41	2598	33 17 43	2648	31 39 54	2709
	α Arietis E.	78 5 31	2111	76 14 48	2102	74 23 51	2093	72 32 41	2085
	Aldebaran E.	111 13 55	2055	109 21 46	2044	107 29 21	2035	105 36 41	2026
	Mars E.	112 1 41	2174	110 12 35	2163	108 23 12	2153	106 33 34	2143
14	Jupiter W.	99 6 58	2028	100 59 48	2024	102 52 45	2020	104 45 48	2017
	Antares W.	84 41 9	2016	86 34 19	2011	88 27 36	2007	90 21 0	2004
	α Aquilæ W.	39 9 38	3132	40 37 8	3042	42 6 29	2962	43 37 29	2892
	α Arietis E.	63 14 23	2061	61 22 24	2059	59 30 22	2058	57 38 18	2059
	Aldebaran E.	96 10 8	1991	94 16 19	1986	92 22 22	1982	90 28 19	1978
	Mars E.	97 22 7	2107	95 31 19	2102	93 40 22	2098	91 49 19	2094
15	Antares W.	99 48 45	2001	101 42 19	2003	103 35 49	2005	105 29 15	2009
	α Aquilæ W.	51 31 50	2649	53 9 38	2618	54 48 9	2590	56 27 18	2566
	α Arietis E.	48 18 50	2080	46 27 20	2090	44 36 5	2100	42 45 6	2112
	Aldebaran E.	80 57 12	1974	79 2 57	1976	77 8 45	1978	75 14 36	1982
	Mars E.	82 33 6	2088	80 41 49	2090	78 50 34	2092	76 59 22	2095
	Pollux E.	123 0 33	2092	121 9 22	2088	119 18 4	2087	117 26 45	2086
16	α Aquilæ W.	64 49 42	2495	66 31 2	2489	68 12 31	2485	69 54 6	2483
	Fomalhaut W.	38 36 23	3402	39 58 37	3302	41 22 47	3216	42 48 37	3142
	α Arietis E.	33 36 14	2216	31 48 11	2247	30 0 54	2285	28 14 33	2329
	Aldebaran E.	65 45 35	2009	63 52 15	2017	61 59 8	2026	60 6 15	2035
	Mars E.	67 44 56	2122	65 54 30	2129	64 4 15	2138	62 14 14	2147
	Pollux E.	108 10 25	2099	106 19 24	2105	104 28 33	2112	102 37 52	2120
17	α Aquilæ W.	78 21 50	2500	80 3 3	2508	81 44 6	2518	83 24 54	2529
	Fomalhaut W.	50 16 22	2905	51 48 34	2877	53 21 22	2854	54 54 40	2835
	α Pegasi W.	30 50 55	2738	32 26 45	2687	34 3 42	2646	35 41 34	2614
	Aldebaran E.	50 45 51	2093	48 54 41	2107	47 3 53	2122	45 13 27	2136
	Mars E.	53 7 57	2204	51 19 35	2217	49 31 33	2231	47 43 51	2245
	Pollux E.	93 27 53	2172	91 38 43	2185	89 49 53	2198	88 1 22	2213
18	α Aquilæ W.	91 44 33	2602	93 23 25	2621	95 1 51	2640	96 39 52	2660
	Fomalhaut W.	62 45 44	2791	64 20 23	2790	65 55 4	2792	67 29 42	2795
	α Pegasi W.	43 59 2	2539	45 39 21	2536	47 19 45	2535	49 0 10	2536
	Aldebaran E.	36 7 11	2220	34 19 13	2239	32 31 43	2258	30 44 41	2277
	Mars E.	38 50 57	2325	37 5 34	2342	35 20 36	2360	33 36 4	2378

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
11	Jupiter W.	62 21 51	2254	64 8 58	2239	65 56 27	2223	67 44 20	2208
	Antares W.	47 53 26	2265	49 40 17	2246	51 27 36	2229	53 15 21	2211
	Fomalhaut E.	44 44 2	2399	43 19 49	2359	41 56 45	2430	40 35 3	2512
	α Pegasi E.	57 2 50	2447	55 20 21	2442	53 37 46	2438	51 55 5	2436
	α Arietis E.	99 50 0	2270	98 3 17	2254	96 16 10	2239	94 28 40	2223
12	Saturn W.	111 52 48	2141	113 42 44	2130	115 32 58	2118	117 23 30	2107
	Spica W.	107 41 24	2094	109 32 33	2082	111 24 0	2070	113 15 46	2059
	Jupiter W.	76 49 10	2139	78 39 10	2126	80 29 29	2114	82 20 6	2103
	Antares W.	62 20 19	2133	64 10 27	2120	66 0 56	2107	67 51 45	2095
	α Pegasi E.	43 22 10	2464	41 40 6	2479	39 58 24	2500	38 17 11	2526
	α Arietis E.	85 25 41	2155	83 36 5	2143	81 46 11	2131	79 55 59	2120
13	Jupiter W.	91 37 17	2055	93 29 26	2048	95 21 46	2041	97 14 17	2034
	Antares W.	77 10 12	2043	79 2 39	2035	80 55 18	2028	82 48 9	2022
	α Pegasi E.	30 3 26	2784	28 28 37	2787	26 55 50	2994	25 25 29	3138
	α Arietis E.	70 41 19	2079	68 49 47	2073	66 58 6	2068	65 6 18	2064
	Aldebaran E.	103 43 47	2017	101 50 39	2009	99 57 19	2002	98 3 48	1996
	Mars E.	104 43 41	2135	102 53 35	2127	101 3 17	2119	99 12 47	2113
14	Jupiter W.	106 38 56	2014	108 32 8	2013	110 25 22	2012	112 18 38	2012
	Antares W.	92 14 28	2001	94 8 0	2000	96 1 35	2000	97 55 10	2000
	α Aquilæ W.	45 9 59	2830	46 43 48	2776	48 18 48	2728	49 54 51	2686
	α Arietis E.	55 46 16	2060	53 54 15	2064	52 2 20	2068	50 10 31	2073
	Aldebaran E.	88 34 10	1976	86 39 58	1975	84 45 44	1974	82 51 28	1973
	Mars E.	89 58 10	2091	88 6 57	2089	86 15 41	2088	84 24 24	2088
15	Antares W.	107 22 35	2014	109 15 47	2019	111 8 51	2026	113 1 45	2033
	α Aquilæ W.	58 7 0	2546	59 47 9	2529	61 27 42	2515	63 8 34	2504
	α Arietis E.	40 54 26	2127	39 4 8	2145	37 14 18	2165	35 24 58	2189
	Aldebaran E.	73 20 33	1986	71 26 36	1990	69 32 46	1996	67 39 5	2003
	Mars E.	75 8 14	2099	73 17 13	2103	71 26 18	2109	69 35 32	2115
	Pollux E.	115 35 24	2086	113 44 4	2088	111 52 46	2091	110 1 32	2095
16	α Aquilæ W.	71 35 44	2483	73 17 21	2484	74 58 57	2488	76 40 27	2493
	Fomalhaut W.	44 15 55	3079	45 44 30	3043	47 14 12	2978	48 44 52	2938
	α Arietis E.	26 29 16	2582	24 45 15	2445	23 2 45	2522	21 22 3	2615
	Aldebaran E.	58 13 36	2046	56 21 13	2057	54 29 8	2068	52 37 20	2081
	Mars E.	60 24 26	2157	58 34 54	2167	56 45 37	2179	54 56 38	2191
	Pollux E.	100 47 23	2128	98 57 7	2138	97 7 6	2149	95 17 21	2160
17	α Aquilæ W.	85 5 27	2541	86 45 43	2554	88 25 41	2569	90 5 18	2585
	Fomalhaut W.	56 28 22	2821	58 2 23	2808	59 36 40	2800	61 11 8	2794
	α Pegasi W.	37 20 10	2589	38 59 20	2570	40 38 56	2556	42 18 52	2546
	Aldebaran E.	43 23 23	2152	41 33 43	2168	39 44 27	2184	37 55 36	2202
	Mars E.	45 56 31	2260	44 9 32	2276	42 22 57	2292	40 36 45	2308
	Pollux E.	86 13 14	2227	84 25 27	2243	82 38 4	2260	80 51 6	2277
18	α Aquilæ W.	98 17 25	2682	99 54 29	2705	101 31 3	2728	103 7 6	2752
	Fomalhaut W.	69 4 17	2800	70 38 45	2806	72 13 5	2814	73 47 14	2824
	α Pegasi W.	50 40 33	2540	52 20 50	2545	54 1 1	2552	55 41 2	2561
	Aldebaran E.	28 58 8	2298	27 12 6	2310	25 26 36	2342	23 41 38	2366
	Mars E.	31 51 58	2397	30 8 19	2416	28 25 7	2435	26 42 22	2455

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
18	Pollux E.	79 4 32	2294	77 18 24	2312	75 32 42	2331	73 47 28	2350
19	α Aquilæ W.	104 42 37	2778	106 17 34	2804	107 51 57	2832	109 25 43	2860
	Fomalhaut W.	75 21 11	2835	76 54 53	2846	78 28 21	2859	80 1 32	2873
	α Pegasi W.	57 20 51	2570	59 0 27	2580	60 39 49	2591	62 18 56	2604
	Pollux E.	65 8 26	2454	63 26 8	2476	61 44 21	2498	60 3 5	2522
	SUN E.	130 17 53	2673	128 40 37	2692	127 3 47	2712	125 27 23	2732
20	Fomalhaut W.	87 42 38	2955	89 13 47	2974	90 44 32	2993	92 14 54	3013
	α Pegasi W.	70 29 57	2675	72 7 10	2690	73 44 3	2707	75 20 34	2723
	α Arietis W.	27 0 1	2787	28 34 46	2778	30 9 43	2771	31 44 49	2767
	Pollux E.	51 45 2	2645	50 7 8	2672	48 29 50	2699	46 53 8	2727
	SUN E.	117 31 59	2832	115 58 12	2852	114 24 52	2872	112 51 57	2892
21	Fomalhaut W.	99 40 20	3120	101 8 6	3143	102 35 23	3167	104 2 12	3190
	α Pegasi W.	83 17 48	2805	84 52 9	2822	86 26 8	2838	87 59 46	2855
	α Arietis W.	39 40 10	2789	41 14 53	2798	42 49 24	2806	44 23 44	2816
	Pollux E.	38 59 22	2883	37 26 42	2920	35 54 49	2959	34 23 43	3000
	SUN E.	105 13 41	2989	103 43 14	3009	102 13 12	3027	100 43 32	3045
22	Fomalhaut W.	111 8 56	3320	112 32 45	3348	113 56 1	3376	115 18 45	3406
	α Pegasi W.	95 42 33	2938	97 14 3	2954	98 45 13	2971	100 16 2	2987
	α Arietis W.	52 12 0	2871	53 44 56	2882	55 17 38	2894	56 50 4	2905
	Aldebaran W.	18 27 59	2833	20 1 44	2840	21 35 20	2848	23 8 46	2858
	Mars W.	14 0 41	2929	15 32 23	2940	17 3 51	2950	18 35 6	2962
	Pollux E.	27 2 42	3273	25 37 59	3349	24 14 44	3436	22 53 8	3539
	SUN E.	93 20 46	3132	91 53 16	3148	90 26 5	3165	88 59 14	3181
23	α Pegasi W.	107 45 8	3067	109 13 58	3082	110 42 30	3098	112 10 42	3113
	α Arietis W.	64 28 44	2961	65 59 46	2970	67 30 36	2981	69 1 12	2991
	Aldebaran W.	30 52 40	2909	32 24 47	2920	33 56 41	2930	35 28 22	2940
	Mars W.	26 7 38	3022	27 37 24	3033	29 6 56	3043	30 36 15	3054
	SUN E.	81 49 29	3253	80 24 23	3266	78 59 32	3279	77 34 56	3292
24	α Arietis W.	76 31 15	3036	78 0 43	3045	79 30 0	3052	80 59 8	3060
	Aldebaran W.	43 3 43	2986	44 34 13	2994	46 4 33	3002	47 34 44	3010
	Mars W.	37 59 40	3102	39 27 47	3111	40 55 43	3119	42 23 30	3127
	SUN E.	70 35 23	3347	69 12 6	3357	67 49 0	3366	66 26 5	3375
25	α Arietis W.	88 22 34	3093	89 50 52	3099	91 19 3	3104	92 47 8	3109
	Aldebaran W.	55 3 24	3042	56 32 45	3047	58 2 0	3052	59 31 8	3056
	Mars W.	49 40 13	3159	51 7 11	3164	52 34 3	3169	54 0 49	3173
	SUN E.	59 33 50	3413	58 11 48	3420	56 49 54	3425	55 28 6	3430
26	α Arietis W.	100 6 6	3130	101 33 39	3134	103 1 8	3137	104 28 33	3139
	Aldebaran W.	66 55 34	3074	68 24 15	3077	69 52 53	3079	71 21 28	3082
	Mars W.	61 13 28	3190	62 39 49	3193	64 6 6	3194	65 32 22	3197
	Pollux W.	26 32 41	3533	27 52 29	3492	29 13 2	3457	30 34 14	3426
	SUN E.	48 40 30	3453	47 19 13	3456	45 58 0	3459	44 36 50	3462
27	Aldebaran W.	78 43 55	3086	80 12 22	3086	81 40 49	3086	83 9 15	3085
	Mars W.	72 43 18	3199	74 9 28	3199	75 35 38	3199	77 1 48	3198
	Pollux W.	37 27 32	3323	38 51 17	3308	40 15 20	3294	41 39 39	3281
	SUN E.	37 51 38	3470	36 30 41	3472	35 9 46	3472	33 48 51	3473

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
18	Pollux E.	72° 2' 41"	2370	70° 18' 23"	2390	68° 34' 34"	2411	66° 51' 15"	2432
19	α Aquilæ W.	110 58 53	2890	112 31 25	2921	114 3 17	2953	115 34 29	2986
	Fomalhaut W.	81 34 25	2888	83 6 59	2904	84 39 13	2920	86 11 7	2938
	α Pegasi W.	63 57 45	2618	65 36 16	2631	67 14 29	2645	68 52 23	2660
	Pollux E.	58 22 22	2546	56 42 12	2569	55 2 35	2593	53 23 31	2619
	SUN E.	123 51 26	2751	122 15 54	2772	120 40 50	2792	119 6 11	2812
20	Fomalhaut W.	93 44 51	3034	95 14 22	3054	96 43 28	3075	98 12 8	3098
	α Pegasi W.	76 56 44	2738	78 32 33	2755	80 8 0	2772	81 43 5	2789
	α Arietis W.	33 20 0	2768	34 55 10	2770	36 30 17	2775	38 5 17	2781
	Pollux E.	45 17 4	2756	43 41 38	2786	42 6 52	2817	40 32 46	2849
	SUN E.	111 19 28	2912	109 47 24	2931	108 15 45	2951	106 44 31	2970
21	Fomalhaut W.	105 28 33	3215	106 54 24	3241	108 19 45	3266	109 44 36	3293
	α Pegasi W.	89 33 2	2872	91 5 57	2889	92 38 30	2905	94 10 42	2922
	α Arietis W.	45 57 51	2827	47 31 44	2837	49 5 24	2848	50 38 49	2859
	Pollux E.	32 53 32	3045	31 24 15	3093	29 55 57	3147	28 28 44	3206
	SUN E.	99 14 15	3064	97 45 21	3081	96 16 48	3099	94 48 37	3115
22	Fomalhaut W.	116 40 55	3437	118 2 30	3468	119 23 30	3501	120 43 53	3534
	α Pegasi W.	101 46 31	3003	103 16 40	3019	104 46 29	3035	106 15 58	3051
	α Arietis W.	58 22 17	2916	59 54 15	2928	61 25 58	2939	62 57 28	2950
	Aldebaran W.	24 41 59	2868	26 14 59	2878	27 47 46	2888	29 20 20	2899
	Mars W.	20 6 6	2974	21 36 51	2985	23 7 22	2998	24 37 37	3010
	Pollux E.	21 33 27	3661	20 15 58	3807	19 1 3	3985	17 49 9	4207
	SUN E.	87 32 42	3195	86 6 27	3211	84 40 31	3225	83 14 52	3239
23	α Pegasi W.	113 38 36	3128	115 6 11	3144	116 33 27	3160	118 0 24	3175
	α Arietis W.	70 31 36	3001	72 1 48	3010	73 31 48	3019	75 1 37	3028
	Aldebaran W.	36 59 50	2950	38 31 5	2959	40 2 9	2968	41 33 2	2977
	Mars W.	32 5 21	3065	33 34 13	3074	35 2 54	3084	36 31 23	3094
	SUN E.	76 10 35	3303	74 46 27	3315	73 22 33	3326	71 58 52	3337
24	α Arietis W.	82 28 6	3068	83 56 55	3074	85 25 36	3081	86 54 9	3087
	Aldebaran W.	49 4 45	3017	50 34 37	3024	52 4 20	3030	53 33 56	3036
	Mars W.	43 51 7	3134	45 18 35	3141	46 45 55	3147	48 13 8	3153
	SUN E.	65 3 20	3383	63 40 44	3392	62 18 18	3399	60 56 0	3406
25	α Arietis W.	94 15 6	3114	95 42 59	3119	97 10 46	3123	98 38 28	3126
	Aldebaran W.	61 0 11	3061	62 29 9	3065	63 58 1	3068	65 26 50	3072
	Mars W.	55 27 30	3178	56 54 6	3182	58 20 37	3184	59 47 5	3188
	SUN E.	54 6 24	3436	52 44 48	3440	51 23 17	3445	50 1 52	3448
26	α Arietis W.	105 55 55	3142	107 23 13	3144	108 50 29	3147	110 17 42	3149
	Aldebaran W.	72 50 0	3083	74 18 31	3084	75 47 0	3085	77 15 28	3086
	Mars W.	66 58 35	3198	68 24 47	3199	69 50 58	3199	71 17 8	3199
	Pollux W.	31 56 1	3400	33 18 17	3377	34 40 59	3357	36 4 5	3339
	SUN E.	43 15 43	3464	41 54 39	3466	40 33 37	3468	39 12 37	3469
27	Aldebaran W.	84 37 43	3085	86 6 11	3084	87 34 40	3083	89 3 11	3081
	Mars W.	78 28 0	3197	79 54 13	3195	81 20 28	3193	82 46 45	3192
	Pollux W.	43 4 12	3270	44 28 59	3259	45 53 58	3249	47 19 9	3240
	SUN E.	32 27 57	3473	31 7 3	3474	29 46 10	3475	28 25 18	3475

Day of the Month.	AIRY'S Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1.62935	1.25332	0.32678	1.49685	46.656
2	1.63044	1.26114	0.32715	1.49677	46.098
3	1.63149	1.26888	0.32752	1.49669	45.543
4	1.63248	1.27652	0.32789	1.49662	44.991
5	1.63341	1.28407	0.32826	1.49656	44.443
6	1.63429	1.29153	0.32862	1.49650	43.899
7	1.63511	1.29891	0.32898	1.49646	43.358
8	1.63588	1.30620	0.32934	1.49642	42.821
9	1.63660	1.31340	0.32969	1.49639	42.289
10	1.63726	1.32051	0.33004	1.49637	41.761
11	1.63787	1.32753	0.33039	1.49635	41.237
12	1.63843	1.33446	0.33074	1.49634	40.718
13	1.63894	1.34131	0.33108	1.49634	40.203
14	1.63939	1.34807	0.33142	1.49635	39.693
15	1.63979	1.35475	0.33175	1.49637	39.187
16	1.64012	1.36135	0.33208	1.49639	38.688
17	1.64040	1.36786	0.33241	1.49642	38.194
18	1.64064	1.37429	0.33275	1.49646	37.703
19	1.64082	1.38064	0.33308	1.49651	37.217
20	1.64095	1.38690	0.33341	1.49657	36.736
21	1.64102	1.39308	0.33375	1.49664	36.261
22	1.64103	1.39917	0.33408	1.49672	35.792
23	1.64098	1.40518	0.33441	1.49681	35.329
24	1.64090	1.41112	0.33475	1.49691	34.871
25	1.64075	1.41698	0.33508	1.49702	34.419
26	1.64055	1.42276	0.33541	1.49713	33.973
27	1.64029	1.42846	0.33573	1.49725	33.533
28	1.63998	1.43408	0.33606	1.49738	33.099
29	1.63961	1.43962	0.33639	1.49752	32.672
30	1.63919	1.44508	0.33672	1.49766	32.251
31	1.63871	1.45046	0.33706	1.49781	31.835

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d . 238 ^m . 45 ^s .	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Days.		
1	+1.2454	-0.8501	+9.9648	+0.8058	h m s 13 14 13.25	163	244	.6681
2	1.2480	0.8296	9.9657	0.8054	13 10 17.35	164	245	.6708
3	1.2505	0.8080	9.9665	0.8050	13 6 21.44	165	246	.6735
4	+1.2529	-0.7852	+9.9674	+0.8046	13 2 25.53	166	247	.6763
5	1.2551	0.7609	9.9682	0.8043	12 58 29.63	167	248	.6790
6	1.2572	0.7350	9.9691	0.8041	12 54 33.72	168	249	.6817
7	+1.2592	-0.7074	+9.9699	+0.8039	12 50 37.81	169	250	.6845
8	1.2610	0.6777	9.9707	0.8037	12 46 41.90	170	251	.6872
9	1.2627	0.6457	9.9715	0.8035	12 42 46.00	171	252	.6900
10	+1.2643	-0.6110	+9.9723	+0.8034	12 38 50.09	172	253	.6927
11	1.2657	0.5731	9.9731	0.8033	12 34 54.18	173	254	.6954
12	1.2670	0.5314	9.9739	0.8033	12 30 58.28	174	255	.6982
13	+1.2682	-0.4852	+9.9747	+0.8033	12 27 2.37	175	256	.7009
14	1.2693	0.4333	9.9754	0.8033	12 23 6.46	176	257	.7036
15	1.2702	0.3741	9.9762	0.8034	12 19 10.56	177	258	.7064
16	+1.2710	-0.3053	+9.9769	+0.8035	12 15 14.65	178	259	.7091
17	1.2717	0.2234	9.9777	0.8037	12 11 18.74	179	260	.7119
18	1.2722	0.1223	9.9784	0.8039	12 7 22.84	180	261	.7146
19	+1.2726	-9.9897	+9.9792	+0.8042	12 3 26.93	181	262	.7173
20	1.2729	9.7978	9.9800	0.8044	11 59 31.03	182	263	.7201
21	1.2731	-9.4449	9.9807	0.8048	11 55 35.13	183	264	.7228
22	+1.2731	+8.8511	+9.9814	+0.8052	11 51 39.22	184	265	.7255
23	1.2730	9.6241	9.9822	0.8056	11 47 43.31	185	266	.7283
24	1.2728	9.8869	9.9829	0.8061	11 43 47.41	186	267	.7310
25	+1.2725	+0.0495	+9.9837	+0.8066	11 39 51.50	187	268	.7338
26	1.2720	0.1674	9.9844	0.8071	11 35 55.59	188	269	.7365
27	1.2714	0.2601	9.9851	0.8077	11 31 59.69	189	270	.7392
28	+1.2707	+0.3363	+9.9859	+0.8084	11 28 3.78	190	271	.7420
29	1.2698	0.4011	9.9866	0.8090	11 24 7.87	191	272	.7447
30	1.2688	0.4573	9.9874	0.8098	11 20 11.97	192	273	.7474
31	+1.2677	+0.5071	+9.9881	+0.8105	11 16 16.06	193	274	.7502

* Add .0011 if Fraction be required for the time t , see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		<i>h m s</i>	<i>s</i>	<i>° ' "</i>	<i>"</i>	<i>m s</i>	<i>m s</i>	<i>s</i>
Sat.	1	12 31 22.23	9.068	S. 3 23 17.7	58.25	1 4 37	10 28.90	0.787
Sun.	2	12 35 0.01	9.081	3 46 34.6	58.15	1 4 42	10 47.62	0.774
Mon.	3	12 38 38.11	9.095	4 9 48.8	58.03	1 4 47	11 6.02	0.760
Tues.	4	12 42 16.54	9.109	4 33 0.1	57.90	1 4 52	11 24.09	0.745
Wed.	5	12 45 55.33	9.124	4 56 8.1	57.75	1 4 58	11 41.80	0.730
Thur.	6	12 49 34.48	9.140	5 19 12.2	57.59	1 4 64	11 59.15	0.715
Frid.	7	12 53 14.03	9.156	5 42 12.3	57.41	1 4 70	12 16.12	0.699
Sat.	8	12 56 53.97	9.173	6 5 7.8	57.21	1 4 76	12 32.68	0.682
Sun.	9	1 0 34.34	9.191	6 27 58.5	57.00	1 4 83	12 48.82	0.664
Mon.	10	1 3 4 15.14	9.210	6 50 44.0	56.78	1 4 90	13 4.52	0.645
Tues.	11	1 3 7 56.40	9.229	7 13 23.8	56.54	1 4 97	13 19.77	0.626
Wed.	12	1 3 11 38.14	9.250	7 35 57.7	56.28	1 5 04	13 34.55	0.606
Thur.	13	1 3 15 20.37	9.271	7 58 25.2	56.01	1 5 12	13 48.83	0.584
Frid.	14	1 3 19 3.14	9.294	8 20 46.1	55.72	1 5 20	14 2.57	0.561
Sat.	15	1 3 22 46.45	9.317	8 42 59.9	55.42	1 5 28	14 15.78	0.538
Sun.	16	1 3 26 30.35	9.341	9 5 6.3	55.11	1 5 37	14 28.41	0.514
Mon.	17	1 3 30 14.83	9.366	9 27 5.0	54.78	1 5 46	14 40.44	0.489
Tues.	18	1 3 33 59.93	9.393	9 48 55.6	54.43	1 5 55	14 51.86	0.463
Wed.	19	1 3 37 45.68	9.420	10 10 37.7	54.07	1 5 64	15 2.64	0.436
Thur.	20	1 3 41 32.07	9.448	10 32 10.9	53.69	1 5 73	15 12.77	0.408
Frid.	21	1 3 45 19.14	9.476	10 53 34.8	53.29	1 5 83	15 22.22	0.380
Sat.	22	1 3 49 6.90	9.505	11 14 49.1	52.88	1 5 92	15 31.06	0.351
Sun.	23	1 3 52 55.35	9.534	11 35 53.2	52.45	1 6 02	15 39.08	0.322
Mon.	24	1 3 56 44.53	9.564	11 56 46.9	52.01	1 6 13	15 46.43	0.292
Tues.	25	1 4 0 34.43	9.595	12 17 29.7	51.55	1 6 23	15 53.07	0.261
Wed.	26	1 4 4 25.08	9.626	12 38 1.1	51.07	1 6 34	15 58.96	0.230
Thur.	27	1 4 8 16.47	9.657	12 58 20.9	50.57	1 6 44	16 4.10	0.199
Frid.	28	1 4 12 8.63	9.689	13 18 28.5	50.06	1 6 55	16 8.49	0.167
Sat.	29	1 4 16 1.56	9.722	13 38 23.6	49.53	1 6 66	16 12.09	0.134
Sun.	30	1 4 19 55.29	9.755	13 58 5.7	48.98	1 6 77	16 14.91	0.101
Mon.	31	1 4 23 49.80	9.788	14 17 34.4	48.41	1 6 89	16 16.95	0.068
Tues.	32	1 4 27 45.11		S. 14 36 49.4		1 7 00	16 18.19	

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
Sat.	1	^h 12 ^m 31 ^s 23·81	S. 3 23 27·9	16 1' 5"	^m 10 29·04	^h 12 41 52·85
Sun.	2	12 35 1·64	3 46 45·0	16 1' 8"	10 47·76	12 45 49·40
Mon.	3	12 38 39·79	4 9 59·6	16 2' 0"	11 6·16	12 49 45·95
Tues.	4	12 42 18·27	4 33 11·1	16 2' 3"	11 24·23	12 53 42·50
Wed.	5	12 45 57·11	4 56 19·3	16 2' 6"	11 41·94	12 57 39·05
Thur.	6	12 49 36·31	5 19 23·7	16 2' 9"	11 59·29	13 1 35·60
Frid.	7	12 53 15·90	5 42 24·0	16 3' 2"	12 16·26	13 5 32·16
Sat.	8	12 56 55·89	6 5 19·8	16 3' 5"	12 32·82	13 9 28·71
Sun.	9	13 0 36·30	6 28 10·7	16 3' 7"	12 48·96	13 13 25·26
Mon.	10	13 4 17·15	6 50 56·4	16 4' 0"	13 4·66	13 17 21·81
Tues.	11	13 7 58·45	7 13 36·4	16 4' 3"	13 19·91	13 21 18·36
Wed.	12	13 11 40·23	7 36 10·4	16 4' 6"	13 34·69	13 25 14·92
Thur.	13	13 15 22·51	7 58 38·1	16 4' 9"	13 48·96	13 29 11·47
Frid.	14	13 19 5·32	8 20 59·1	16 5' 2"	14 2·70	13 33 8·02
Sat.	15	13 22 48·67	8 43 13·1	16 5' 4"	14 15·91	13 37 4·58
Sun.	16	13 26 32·60	9 5 19·6	16 5' 7"	14 28·53	13 41 1·13
Mon.	17	13 30 17·12	9 27 18·4	16 6' 0"	14 40·56	13 44 57·68
Tues.	18	13 34 2·26	9 49 9·1	16 6' 2"	14 51·97	13 48 54·23
Wed.	19	13 37 48·04	10 10 51·3	16 6' 5"	15 2·75	13 52 50·79
Thur.	20	13 41 34·47	10 32 24·5	16 6' 8"	15 12·87	13 56 47·34
Frid.	21	13 45 21·57	10 53 48·5	16 7' 0"	15 22·32	14 0 43·89
Sat.	22	13 49 9·36	11 15 2·7	16 7' 3"	15 31·09	14 4 40·45
Sun.	23	13 52 57·84	11 36 6·9	16 7' 5"	15 39·16	14 8 37·00
Mon.	24	13 56 47·04	11 57 0·6	16 7' 8"	15 46·51	14 12 33·55
Tues.	25	14 0 36·97	12 17 43·3	16 8' 1"	15 53·14	14 16 30·11
Wed.	26	14 4 27·64	12 38 14·7	16 8' 3"	15 59·02	14 20 26·66
Thur.	27	14 8 19·06	12 58 34·4	16 8' 6"	16 4·15	14 24 23·21
Frid.	28	14 12 11·24	13 18 42·0	16 8' 8"	16 8·53	14 28 19·77
Sat.	29	14 16 4·19	13 38 37·0	16 9' 1"	16 12·13	14 32 16·32
Sun.	30	14 19 57·93	13 58 19·0	16 9' 3"	16 14·94	14 36 12·87
Mon.	31	14 23 52·46	14 17 47·6	16 9' 6"	16 16·97	14 40 9·43
Tues.	32	14 27 47·78	S. 14 37 2·4	16 9' 8"	16 18·20	14 44 5·98

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	188° 32' 46".3	S. 0° 17'	0.0001529	14 52.5	14 55.0	54 29.8	54 39.1
2	189 31 54.1	S. 0° 05'	0.0000268	14 57.8	15 0.9	54 49.4	55 0.7
3	190 31 3.9	N. 0° 07'	9.9999001	15 4.3	15 8.0	55 13.0	55 26.3
4	191 30 15.5	0° 20'	9.9997728	15 11.8	15 16.0	55 40.7	55 56.1
5	192 29 29.1	0° 31'	9.9996450	15 20.5	15 25.3	56 12.5	56 30.0
6	193 28 44.6	0° 43'	9.9995170	15 30.3	15 35.6	56 48.5	57 7.9
7	194 28 1.9	0° 52'	9.9993886	15 41.2	15 47.0	57 28.3	57 49.3
8	195 27 21.0	0° 60'	9.9992603	15 52.8	15 58.7	58 10.8	58 32.5
9	196 26 41.8	0° 64'	9.9991321	16 4.6	16 10.4	58 54.2	59 15.4
10	197 26 4.3	0° 66'	9.9990042	16 15.9	16 21.1	59 35.6	59 54.4
11	198 25 28.5	0° 64'	9.9988768	16 25.7	16 29.6	60 11.3	60 25.6
12	199 24 54.4	0° 58'	9.9987501	16 32.6	16 34.8	60 36.9	60 44.7
13	200 24 22.1	0° 50'	9.9986242	16 35.9	16 35.8	60 48.6	60 48.4
14	201 23 51.8	0° 38'	9.9984993	16 34.6	16 32.2	60 44.0	60 35.2
15	202 23 23.5	0° 25'	9.9983754	16 28.7	16 24.2	60 22.4	60 5.8
16	203 22 57.2	N. 0° 12'	9.9982527	16 18.7	16 12.6	59 45.8	59 23.2
17	204 22 33.1	S. 0° 02'	9.9981311	16 5.8	15 58.5	58 58.3	58 31.8
18	205 22 11.3	0° 14'	9.9980105	15 51.1	15 43.5	58 4.5	57 36.9
19	206 21 51.7	0° 25'	9.9978907	15 36.1	15 28.9	57 9.6	56 43.2
20	207 21 34.3	0° 32'	9.9977720	15 22.0	15 15.6	56 17.9	55 54.3
21	208 21 19.2	0° 37'	9.9976542	15 9.6	15 4.3	55 32.7	55 13.2
22	209 21 6.3	0° 40'	9.9975371	14 59.7	14 55.6	54 56.1	54 41.4
23	210 20 55.7	0° 39'	9.9974207	14 52.3	14 49.7	54 29.3	54 19.7
24	211 20 47.3	0° 38'	9.9973049	14 47.8	14 46.6	54 12.7	54 8.1
25	212 20 41.0	0° 34'	9.9971896	14 46.0	14 46.0	54 5.9	54 6.0
26	213 20 36.8	0° 28'	9.9970747	14 46.6	14 47.7	54 8.2	54 12.4
27	214 20 34.7	0° 19'	9.9969603	14 49.4	14 51.4	54 18.4	54 26.0
28	215 20 34.8	S. 0° 08'	9.9968463	14 53.9	14 56.7	54 35.0	54 45.3
29	216 20 36.9	N. 0° 02'	9.9967327	14 59.8	15 3.2	54 56.7	55 8.9
30	217 20 41.0	0° 15'	9.9966194	15 6.7	15 10.4	55 21.8	55 35.3
31	218 20 47.0	0° 27'	9.9965066	15 14.2	15 18.0	55 49.3	56 3.5
32	219 20 54.8	N. 0° 40'	9.9963943	15 22.0	15 26.0	56 17.9	56 32.5

MEAN TIME.

Day of the Week.	Day of the Month.	THE MOON'S							
		Longitude.		Latitude.		Age.		Meridian	
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
		^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^d	^h ^m		
Sat.	1	194 39 4.0	200 41 16.9	S.2 11 32.0	S.1 40 54.4	0.6	0 8.9		
Sun.	2	206 45 19.2	212 51 24.1	1 8 56.8	S.0 35 59.1	1.6	0 53.4		
Mon.	3	218 59 45.6	225 10 39.2	S.0 2 22.1	N.0 31 32.2	2.6	1 39.8		
Tues.	4	231 24 21.3	237 41 9.6	N.1 5 20.9	1 38 40.2	3.6	2 28.3		
Wed.	5	244 1 23.0	250 25 20.2	2 11 5.7	2 42 12.9	4.6	3 19.1		
Thur.	6	256 53 22.0	263 25 47.7	3 11 36.1	3 38 49.9	5.6	4 11.7		
Frid.	7	270 2 56.0	276 45 3.6	4 3 28.7	4 25 7.7	6.6	5 5.8		
Sat.	8	283 32 24.5	290 25 8.5	4 43 21.7	4 57 47.2	7.6	6 0.6		
Sun.	9	297 23 20.0	304 26 57.4	5 8 2.5	5 13 48.3	8.6	6 55.5		
Mon.	10	311 35 51.0	318 49 43.1	5 14 48.5	5 10 51.6	9.6	7 50.1		
Tues.	11	326 8 6.9	333 30 26.0	5 1 51.6	4 47 49.0	10.6	8 44.4		
Wed.	12	340 55 55.8	348 23 43.3	4 28 51.2	4 5 13.7	11.6	9 38.6		
Thur.	13	355 52 49.8	3 22 11.7	3 37 19.8	3 5 39.8	12.6	10 33.1		
Frid.	14	10 50 44.2	18 17 22.5	2 30 50.6	1 53 34.5	13.6	11 28.3		
Sat.	15	25 41 5.2	33 0 56.3	N.1 14 36.3	N.0 34 42.4	14.6	12 24.3		
Sun.	16	40 16 6.7	47 25 56.2	S.0 5 21.4	S.0 44 51.8	15.6	13 20.8		
Mon.	17	54 29 53.6	61 27 37.3	1 23 9.2	1 59 38.7	16.6	14 17.3		
Tues.	18	68 18 55.4	75 3 45.0	2 33 50.8	3 5 21.0	17.6	15 12.8		
Wed.	19	81 42 11.2	88 14 26.2	3 33 50.4	3 59 4.7	18.6	16 6.4		
Thur.	20	94 40 48.6	101 1 41.9	4 20 53.8	4 39 10.9	19.6	16 57.6		
Frid.	21	107 17 33.5	113 28 53.8	4 53 52.7	5 4 57.8	20.6	17 46.1		
Sat.	22	119 36 15.4	125 40 12.0	5 12 26.8	5 16 21.8	21.6	18 32.1		
Sun.	23	131 41 18.0	137 40 8.2	5 16 46.0	5 13 43.5	22.6	19 16.2		
Mon.	24	143 37 16.2	149 33 15.2	5 7 19.3	4 57 39.1	23.6	19 58.8		
Tues.	25	155 28 36.9	161 23 51.6	4 44 49.4	4 28 57.5	24.6	20 40.8		
Wed.	26	167 19 27.5	173 15 51.0	4 10 11.8	3 48 41.8	25.6	21 22.8		
Thur.	27	179 13 25.8	185 12 33.9	3 24 38.5	2 58 14.0	26.6	22 5.7		
Frid.	28	191 13 34.6	197 16 45.3	2 29 42.2	1 59 18.9	27.6	22 49.9		
Sat.	29	203 22 20.4	209 30 32.9	1 27 21.6	S.0 54 9.6	28.6	23 36.1		
Sun.	30	215 41 33.3	221 55 30.7	S.0 20 4.0	N.0 14 32.3	29.6	0		
Mon.	31	228 12 31.8	234 32 42.5	N.0 49 15.0	1 23 38.6	0.9	0 24.6		
Tues.	32	240 56 7.4	247 22 49.8	N.1 57 16.7	N.2 29 42.2	1.9	1 15.4		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 1.				MONDAY 3.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	12 50 31.29	S. 7 47 55.1	93.89	0	14 26 21.77	S. 14 32 32.9	71.39
1	12 52 27.21	7 57 18.5	93.60	1	14 28 26.19	14 39 41.3	70.74
2	12 54 23.26	8 6 40.0	93.29	2	14 30 30.82	14 46 45.7	70.08
3	12 56 19.45	8 15 59.8	92.98	3	14 32 35.66	14 53 46.2	69.42
4	12 58 15.79	8 25 17.7	92.66	4	14 34 40.71	15 0 42.7	68.75
5	13 0 12.27	8 34 33.7	92.34	5	14 36 45.96	15 7 35.2	68.07
6	13 2 8.90	8 43 47.7	92.00	6	14 38 51.43	15 14 23.6	67.38
7	13 4 5.67	8 52 59.7	91.66	7	14 40 57.10	15 21 7.9	66.68
8	13 6 2.60	9 2 9.7	91.32	8	14 43 2.98	15 27 47.9	65.98
9	13 7 59.68	9 11 17.6	90.97	9	14 45 9.08	15 34 23.8	65.27
10	13 9 56.91	9 20 23.4	90.60	10	14 47 15.38	15 40 55.4	64.55
11	13 11 54.30	9 29 27.0	90.23	11	14 49 21.89	15 47 22.7	63.82
12	13 13 51.84	9 38 28.4	89.86	12	14 51 28.61	15 53 45.6	63.09
13	13 15 49.55	9 47 27.6	89.47	13	14 53 35.55	16 0 4.1	62.35
14	13 17 47.41	9 56 24.4	89.08	14	14 55 42.69	16 6 18.2	61.60
15	13 19 45.44	10 5 18.9	88.69	15	14 57 50.05	16 12 27.8	60.84
16	13 21 43.64	10 14 11.1	88.28	16	14 59 57.62	16 18 32.9	60.08
17	13 23 42.00	10 23 0.8	87.87	17	15 2 5.40	16 24 33.3	59.31
18	13 25 40.53	10 31 48.0	87.45	18	15 4 13.40	16 30 29.2	58.53
19	13 27 39.23	10 40 32.7	87.02	19	15 6 21.60	16 36 20.4	57.75
20	13 29 38.10	10 49 14.8	86.58	20	15 8 30.02	16 42 6.9	56.96
21	13 31 37.14	10 57 54.3	86.14	21	15 10 38.65	16 47 48.6	56.16
22	13 33 36.36	11 6 31.2	85.69	22	15 12 47.49	16 53 25.6	55.35
23	13 35 35.75	S. 11 15 5.3	85.24	23	15 14 56.54	S. 16 58 57.7	54.54
SUNDAY 2.				TUESDAY 4.			
0	13 37 35.31	S. 11 23 36.7	84.78	0	15 17 5.80	S. 17 4 24.9	53.72
1	13 39 35.06	11 32 5.4	84.31	1	15 19 15.27	17 9 47.2	52.89
2	13 41 34.99	11 40 31.2	83.83	2	15 21 24.95	17 15 4.6	52.06
3	13 43 35.11	11 48 54.2	83.34	3	15 23 34.84	17 20 17.0	51.22
4	13 45 35.41	11 57 14.2	82.85	4	15 25 44.94	17 25 24.3	50.37
5	13 47 35.89	12 5 31.3	82.34	5	15 27 55.25	17 30 26.5	49.52
6	13 49 36.56	12 13 45.4	81.83	6	15 30 5.77	17 35 23.6	48.65
7	13 51 37.41	12 21 56.4	81.32	7	15 32 16.49	17 40 15.5	47.78
8	13 53 38.46	12 30 4.3	80.79	8	15 34 27.42	17 45 2.2	46.91
9	13 55 39.69	12 38 9.1	80.26	9	15 36 38.56	17 49 43.7	46.03
10	13 57 41.12	12 46 10.7	79.72	10	15 38 49.91	17 54 19.9	45.14
11	13 59 42.74	12 54 9.0	79.18	11	15 41 1.46	17 58 50.7	44.24
12	14 1 44.55	13 2 4.1	78.63	12	15 43 13.21	18 3 16.1	43.34
13	14 3 46.55	13 9 55.9	78.06	13	15 45 25.17	18 7 36.2	42.44
14	14 5 48.75	13 17 44.2	77.49	14	15 47 37.32	18 11 50.8	41.52
15	14 7 51.15	13 25 29.2	76.92	15	15 49 49.68	18 15 59.9	40.60
16	14 9 53.74	13 33 10.7	76.34	16	15 52 2.24	18 20 3.5	39.67
17	14 11 56.54	13 40 48.7	75.74	17	15 54 14.99	18 24 1.6	38.74
18	14 13 59.54	13 48 23.2	75.14	18	15 56 27.94	18 27 54.0	37.80
19	14 16 2.73	13 55 54.1	74.54	19	15 58 41.09	18 31 40.8	36.85
20	14 18 6.13	14 3 21.3	73.92	20	16 0 54.43	18 35 21.9	35.90
21	14 20 9.74	14 10 44.8	73.30	21	16 3 7.97	18 38 57.3	34.93
22	14 22 13.54	14 18 4.6	72.67	22	16 5 21.70	18 42 26.9	33.97
23	14 24 17.55	14 25 20.6	72.04	23	16 7 35.62	18 45 50.7	33.00
24	14 26 21.77	S. 14 32 32.9		24	16 9 49.72	S. 18 49 8.7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
WEDNESDAY 5.				FRIDAY 7.			
0	h m s 16 9 49.72	S. 18 49 8.7	32.02	0	h m s 18 0 12.41	S. 19 23 49.2	20.04
1	16 12 4.02	18 52 20.8	31.04	1	18 2 33.31	19 21 48.9	21.19
2	16 14 18.50	18 55 27.1	30.05	2	18 4 54.28	19 19 41.8	22.34
3	16 16 33.17	18 58 27.4	29.06	3	18 7 15.32	19 17 27.7	23.49
4	16 18 48.03	19 1 21.8	28.06	4	18 9 36.44	19 15 6.8	24.65
5	16 21 3.06	19 4 10.1	27.05	5	18 11 57.62	19 12 38.9	25.80
6	16 23 18.28	19 6 52.4	26.04	6	18 14 18.87	19 10 4.1	26.95
7	16 25 33.67	19 9 28.7	25.03	7	18 16 40.18	19 7 22.4	28.10
8	16 27 49.24	19 11 58.9	24.01	8	18 19 1.56	19 4 33.8	29.26
9	16 30 4.99	19 14 22.9	22.98	9	18 21 22.99	19 1 38.2	30.41
10	16 32 20.91	19 16 40.8	21.95	10	18 23 44.48	18 58 35.8	31.56
11	16 34 37.00	19 18 52.5	20.92	11	18 26 6.02	18 55 26.4	32.71
12	16 36 53.25	19 20 58.0	19.88	12	18 28 27.61	18 52 10.2	33.86
13	16 39 9.68	19 22 57.3	18.83	13	18 30 49.25	18 48 47.1	35.01
14	16 41 26.27	19 24 50.2	17.78	14	18 33 10.94	18 45 17.0	36.15
15	16 43 43.03	19 26 36.9	16.72	15	18 35 32.67	18 41 40.1	37.30
16	16 45 59.94	19 28 17.2	15.66	16	18 37 54.44	18 37 56.3	38.44
17	16 48 17.02	19 29 51.2	14.60	17	18 40 16.24	18 34 5.7	39.59
18	16 50 34.25	19 31 18.8	13.53	18	18 42 38.09	18 30 8.2	40.73
19	16 52 51.64	19 32 40.0	12.46	19	18 44 59.97	18 26 3.8	41.87
20	16 55 9.17	19 33 54.7	11.38	20	18 47 21.87	18 21 52.6	43.01
21	16 57 26.86	19 35 3.0	10.30	21	18 49 43.81	18 17 34.5	44.14
22	16 59 44.70	19 36 4.8	9.21	22	18 52 5.78	18 13 9.7	45.28
23	17 2 2.68	S. 19 37 0.1	8.12	23	18 54 27.76	S. 18 8 38.0	46.41
THURSDAY 6.				SATURDAY 8.			
0	17 4 20.81	S. 19 37 48.8	7.03	0	18 56 49.77	S. 18 3 59.6	47.54
1	17 6 39.08	19 38 31.0	5.94	1	18 59 11.80	17 59 14.4	48.67
2	17 8 57.48	19 39 6.6	4.84	2	19 1 33.85	17 54 22.4	49.79
3	17 11 16.02	19 39 35.6	3.73	3	19 3 55.91	17 49 23.6	50.91
4	17 13 34.70	19 39 58.0	2.62	4	19 6 17.99	17 44 18.2	52.03
5	17 15 53.50	19 40 13.8	1.51	5	19 8 40.08	17 39 6.0	53.14
6	17 18 12.44	19 40 22.8	0.40	6	19 11 2.17	17 33 47.1	54.25
7	17 20 31.50	19 40 25.2	0.72	7	19 13 24.28	17 28 21.6	55.37
8	17 22 50.68	19 40 20.9	1.84	8	19 15 46.39	17 22 49.4	56.47
9	17 25 9.99	19 40 9.9	2.96	9	19 18 8.50	17 17 10.6	57.57
10	17 27 29.41	19 39 52.2	4.08	10	19 20 30.61	17 11 25.2	58.67
11	17 29 48.96	19 39 27.7	5.21	11	19 22 52.72	17 5 33.2	59.76
12	17 32 8.61	19 38 56.4	6.34	12	19 25 14.83	16 59 34.6	60.85
13	17 34 28.38	19 38 18.4	7.47	13	19 27 36.94	16 53 29.5	61.94
14	17 36 48.25	19 37 33.5	8.61	14	19 29 59.04	16 47 17.9	63.02
15	17 39 8.24	19 36 41.9	9.74	15	19 32 21.13	16 40 59.8	64.09
16	17 41 28.32	19 35 43.4	10.88	16	19 34 43.21	16 34 35.3	65.16
17	17 43 48.51	19 34 38.1	12.02	17	19 37 5.28	16 28 4.3	66.23
18	17 46 8.79	19 33 26.0	13.16	18	19 39 27.34	16 21 26.9	67.29
19	17 48 29.17	19 32 7.0	14.30	19	19 41 49.39	16 14 43.2	68.35
20	17 50 49.64	19 30 41.2	15.45	20	19 44 11.43	16 7 53.1	69.39
21	17 53 10.21	19 29 8.5	16.60	21	19 46 33.44	16 0 56.8	70.44
22	17 55 30.86	19 27 28.9	17.74	22	19 48 55.44	15 53 54.1	71.48
23	17 57 51.59	19 25 42.5	18.89	23	19 51 17.43	15 46 45.2	72.52
24	18 0 12.41	S. 19 23 49.2		24	19 53 39.39	S. 15 39 30.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
<i>SUNDAY 9.</i>				<i>TUESDAY 11.</i>			
0	^h 19 ^m 53 ^s 39' 39	S. 15° 39' 30" 1	73° 54	0	^h 21 ^m 46 ^s 38' 86	S. 8° 4' 34" 7	113° 29
1	19 56 1' 33	15 32 8' 9	74° 56	1	21 48 59' 40	7 53 15' 0	113° 87
2	19 58 23' 25	15 24 41' 5	75° 58	2	21 51 19' 91	7 41 51' 8	114° 43
3	20 0 45' 15	15 17 8' 0	76° 59	3	21 53 40' 41	7 30 25' 2	114° 98
4	20 3 7' 02	15 9 28' 5	77° 59	4	21 56 0' 90	7 18 55' 3	115° 52
5	20 5 28' 87	15 1 43' 0	78° 59	5	21 58 21' 36	7 7 22' 2	116° 05
6	20 7 50' 69	14 53 51' 4	79° 58	6	22 0 41' 82	6 55 45' 9	116° 56
7	20 10 12' 49	14 45 54' 0	80° 56	7	22 3 2' 26	6 44 6' 5	117° 06
8	20 12 34' 25	14 37 50' 6	81° 54	8	22 5 22' 70	6 32 24' 1	117° 55
9	20 14 55' 99	14 29 41' 4	82° 51	9	22 7 43' 12	6 20 38' 8	118° 03
10	20 17 17' 70	14 21 26' 3	83° 47	10	22 10 3' 53	6 8 50' 6	118° 49
11	20 19 39' 38	14 13 5' 5	84° 42	11	22 12 23' 94	5 56 59' 6	118° 94
12	20 22 1' 02	14 4 39' 1	85° 36	12	22 14 44' 34	5 45 6' 0	119° 37
13	20 24 22' 64	13 56 6' 9	86° 30	13	22 17 4' 74	5 33 9' 8	119° 79
14	20 26 44' 22	13 47 29' 1	87° 23	14	22 19 25' 13	5 21 11' 0	120° 20
15	20 29 5' 77	13 38 45' 7	88° 16	15	22 21 45' 53	5 9 9' 8	120° 60
16	20 31 27' 29	13 29 56' 8	89° 07	16	22 24 5' 92	4 57 6' 2	120° 98
17	20 33 48' 78	13 21 2' 4	89° 98	17	22 26 26' 31	4 45 0' 4	121° 34
18	20 36 10' 23	13 12 2' 5	90° 87	18	22 28 46' 71	4 32 52' 3	121° 70
19	20 38 31' 65	13 2 57' 3	91° 76	19	22 31 7' 11	4 20 42' 1	122° 04
20	20 40 53' 04	12 53 46' 7	92° 65	20	22 33 27' 52	4 8 29' 9	122° 36
21	20 43 14' 39	12 44 30' 8	93° 52	21	22 35 47' 94	3 56 15' 7	122° 68
22	20 45 35' 71	12 35 9' 7	94° 38	22	22 38 8' 36	3 43 59' 6	122° 98
23	20 47 56' 99	S. 12° 25' 43" 4	95° 24	23	22 40 28' 79	S. 3° 31' 41" 8	123° 26
<i>MONDAY 10.</i>				<i>WEDNESDAY 12.</i>			
0	20 50 18' 23	S. 12° 16' 12" 0	96° 08	0	22 42 49' 23	S. 3° 19' 22" 2	123° 53
1	20 52 39' 45	12 6 35' 5	96° 92	1	22 45 9' 69	3 7 1' 0	123° 78
2	20 55 0' 63	11 56 54' 0	97° 75	2	22 47 30' 16	2 54 38' 3	124° 02
3	20 57 21' 77	11 47 7' 5	98° 56	3	22 49 50' 65	2 42 14' 2	124° 25
4	20 59 42' 89	11 37 16' 2	99° 37	4	22 52 11' 15	2 29 48' 8	124° 46
5	21 2 3' 97	11 27 20' 0	100° 17	5	22 54 31' 68	2 17 22' 0	124° 66
6	21 4 25' 02	11 17 19' 0	100° 95	6	22 56 52' 23	2 4 54' 1	124° 84
7	21 6 46' 03	11 7 13' 3	101° 73	7	22 59 12' 80	1 52 25' 1	125° 00
8	21 9 7' 02	10 57 2' 9	102° 49	8	23 1 33' 39	1 39 55' 0	125° 16
9	21 11 27' 97	10 46 47' 9	103° 25	9	23 3 54' 02	1 27 24' 1	125° 30
10	21 13 48' 89	10 36 28' 4	104° 00	10	23 6 14' 67	1 14 52' 3	125° 42
11	21 16 9' 78	10 26 4' 4	104° 73	11	23 8 35' 35	1 2 19' 8	125° 53
12	21 18 30' 64	10 15 36' 0	105° 46	12	23 10 56' 05	0 49 46' 6	125° 63
13	21 20 51' 47	10 5 3' 2	106° 17	13	23 13 16' 79	0 37 12' 9	125° 71
14	21 23 12' 27	9 54 26' 2	106° 88	14	23 15 37' 57	0 24 38' 6	125° 77
15	21 25 33' 04	9 43 45' 0	107° 57	15	23 17 58' 38	S. 0° 12' 4" 0	125° 82
16	21 27 53' 79	9 32 59' 5	108° 25	16	23 20 19' 23	N. 0° 0' 30" 9	125° 85
17	21 30 14' 51	9 22 10' 0	108° 92	17	23 22 40' 12	0 13 6' 0	125° 86
18	21 32 35' 20	9 11 16' 5	109° 58	18	23 25 1' 05	0 25 41' 2	125° 87
19	21 34 55' 87	9 0 19' 0	110° 23	19	23 27 22' 02	0 38 16' 4	125° 86
20	21 37 16' 51	8 49 17' 7	110° 86	20	23 29 43' 03	0 50 51' 5	125° 83
21	21 39 37' 13	8 38 12' 5	111° 49	21	23 32 4' 09	1 3 26' 4	125° 78
22	21 41 57' 73	8 27 3' 6	112° 10	22	23 34 25' 20	1 16 1' 1	125° 72
23	21 44 18' 30	8 15 50' 9	112° 70	23	23 36 46' 35	1 28 35' 5	125° 65
24	21 46 38' 86	S. 8° 4' 34" 7		24	23 39 7' 55	N. 1° 41' 9" 3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 13.				SATURDAY 15.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	23 39 7.55	N. 1 41 9.3	125.55	0	1 33 22.99	N. 11 5 30.0	103.50
1	23 41 28.80	1 53 42.6	125.45	1	1 35 47.63	11 15 51.0	102.69
2	23 43 50.10	2 6 15.3	125.33	2	1 38 12.34	11 26 7.2	101.88
3	23 46 11.45	2 18 47.3	125.19	3	1 40 37.13	11 36 18.4	101.05
4	23 48 32.86	2 31 18.4	125.04	4	1 43 1.98	11 46 24.7	100.21
5	23 50 54.33	2 43 48.6	124.87	5	1 45 26.90	11 56 26.0	99.36
6	23 53 15.85	2 56 17.8	124.68	6	1 47 51.89	12 6 22.2	98.50
7	23 55 37.43	3 8 45.9	124.48	7	1 50 16.94	12 16 13.2	97.63
8	23 57 59.07	3 21 12.8	124.27	8	1 52 42.05	12 25 58.9	96.74
9	0 0 20.77	3 33 38.5	124.04	9	1 55 7.23	12 35 39.4	95.84
10	0 2 42.53	3 46 2.7	123.80	10	1 57 32.47	12 45 14.4	94.93
11	0 5 4.36	3 58 25.5	123.54	11	1 59 57.77	12 54 44.0	94.02
12	0 7 26.25	4 10 46.7	123.27	12	2 2 23.13	13 4 8.1	93.09
13	0 9 48.21	4 23 6.3	122.98	13	2 4 48.55	13 13 26.6	92.15
14	0 12 10.23	4 35 24.1	122.67	14	2 7 14.02	13 22 39.5	91.20
15	0 14 32.32	4 47 40.1	122.34	15	2 9 39.54	13 31 46.7	90.24
16	0 16 54.48	4 59 54.2	122.00	16	2 12 5.12	13 40 48.1	89.26
17	0 19 16.71	5 12 6.3	121.65	17	2 14 30.74	13 49 43.7	88.28
18	0 21 39.01	5 24 16.2	121.28	18	2 16 56.41	13 58 33.4	87.29
19	0 24 1.38	5 36 23.9	120.90	19	2 19 22.13	14 7 17.1	86.30
20	0 26 23.83	5 48 29.3	120.50	20	2 21 47.90	14 15 54.9	85.29
21	0 28 46.34	6 0 32.3	120.09	21	2 24 13.70	14 24 26.6	84.27
22	0 31 8.93	6 12 32.8	119.66	22	2 26 39.55	14 32 52.3	83.24
23	0 33 31.59	N. 6 24 30.8	119.21	23	2 29 5.43	N. 14 41 11.7	82.21
FRIDAY 14.				SUNDAY 16.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	0 35 54.33	N. 6 36 26.0	118.76	0	2 31 31.35	N. 14 49 24.9	81.16
1	0 38 17.14	6 48 18.6	118.29	1	2 33 57.30	14 57 31.9	80.11
2	0 40 40.02	7 0 8.3	117.80	2	2 36 23.28	15 5 32.5	79.05
3	0 43 2.99	7 11 55.2	117.30	3	2 38 49.29	15 13 26.8	77.98
4	0 45 26.03	7 23 39.0	116.78	4	2 41 15.32	15 21 14.7	76.91
5	0 47 49.14	7 35 19.7	116.25	5	2 43 41.38	15 28 56.2	75.83
6	0 50 12.33	7 46 57.2	115.71	6	2 46 7.45	15 36 31.1	74.74
7	0 52 35.60	7 58 31.4	115.15	7	2 48 33.55	15 43 59.6	73.64
8	0 54 58.95	8 10 2.3	114.57	8	2 50 59.65	15 51 21.4	72.54
9	0 57 22.37	8 21 29.8	113.98	9	2 53 25.77	15 58 36.6	71.43
10	0 59 45.87	8 32 53.6	113.38	10	2 55 51.90	16 5 45.1	70.31
11	1 2 9.45	8 44 13.9	112.76	11	2 58 18.03	16 12 47.0	69.19
12	1 4 33.11	8 55 30.4	112.13	12	3 0 44.17	16 19 42.1	68.06
13	1 6 56.85	9 6 43.2	111.48	13	3 3 10.30	16 26 30.4	66.92
14	1 9 20.66	9 17 52.0	110.82	14	3 5 36.43	16 33 12.0	65.78
15	1 11 44.55	9 28 57.0	110.15	15	3 8 2.56	16 39 46.7	64.64
16	1 14 8.52	9 39 57.9	109.46	16	3 10 28.67	16 46 14.5	63.49
17	1 16 32.56	9 50 54.6	108.76	17	3 12 54.78	16 52 35.4	62.33
18	1 18 56.68	10 1 47.2	108.05	18	3 15 20.86	16 58 49.4	61.17
19	1 21 20.88	10 12 35.5	107.32	19	3 17 46.93	17 4 56.4	60.00
20	1 23 45.15	10 23 19.4	106.58	20	3 20 12.97	17 10 56.4	58.83
21	1 26 9.50	10 33 58.9	105.83	21	3 22 38.99	17 16 49.4	57.66
22	1 28 33.93	10 44 33.9	105.07	22	3 25 4.97	17 22 35.3	56.48
23	1 30 58.42	10 55 4.3	104.29	23	3 27 30.93	17 28 14.2	55.30
24	1 33 22.99	N. 11 5 30.0		24	3 29 56.85	N. 17 33 46.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 17.				WEDNESDAY 19.			
0	h m s 3 29 56.85	N. 17 33 46.1	54.12	0	h m s 5 24 48.95	N. 19 38 16.0	2.88
1	3 32 22.73	17 39 10.8	52.93	1	5 27 8.80	19 37 58.7	4.00
2	3 34 48.57	17 44 28.4	51.74	2	5 29 28.45	19 37 34.7	5.12
3	3 37 14.36	17 49 38.8	50.55	3	5 31 47.89	19 37 4.0	6.23
4	3 39 40.10	17 54 42.1	49.35	4	5 34 7.13	19 36 26.6	7.33
5	3 42 5.79	17 59 38.2	48.15	5	5 36 26.15	19 35 42.6	8.43
6	3 44 31.42	18 4 27.1	46.95	6	5 38 44.96	19 34 52.0	9.52
7	3 46 56.99	18 9 8.8	45.75	7	5 41 3.56	19 33 54.9	10.61
8	3 49 22.49	18 13 43.2	44.54	8	5 43 21.94	19 32 51.2	11.69
9	3 51 47.93	18 18 10.5	43.33	9	5 45 40.10	19 31 41.1	12.77
10	3 54 13.30	18 22 30.5	42.12	10	5 47 58.04	19 30 24.5	13.84
11	3 56 38.58	18 26 43.3	40.92	11	5 50 15.75	19 29 1.4	14.90
12	3 59 3.79	18 30 48.8	39.71	12	5 52 33.24	19 27 32.0	15.96
13	4 1 28.92	18 34 47.1	38.50	13	5 54 50.50	19 25 56.2	17.01
14	4 3 53.96	18 38 38.1	37.29	14	5 57 7.53	19 24 14.2	18.06
15	4 6 18.91	18 42 21.8	36.08	15	5 59 24.33	19 22 25.8	19.10
16	4 8 43.77	18 45 58.3	34.87	16	6 1 40.90	19 20 31.2	20.13
17	4 11 8.53	18 49 27.5	33.66	17	6 3 57.23	19 18 30.5	21.16
18	4 13 33.19	18 52 49.4	32.45	18	6 6 13.33	19 16 23.5	22.17
19	4 15 57.75	18 56 4.1	31.24	19	6 8 29.19	19 14 10.5	23.18
20	4 18 22.19	18 59 11.6	30.03	20	6 10 44.81	19 11 51.4	24.19
21	4 20 46.53	19 2 11.7	28.82	21	6 13 0.19	19 9 26.2	25.19
22	4 23 10.75	19 5 4.6	27.61	22	6 15 15.33	19 6 55.1	26.19
23	4 25 34.86	N. 19 7 50.3	26.41	23	6 17 30.23	N. 19 4 18.0	27.17
TUESDAY 18.				THURSDAY 20.			
0	4 27 58.84	N. 19 10 28.7	25.20	0	6 19 44.88	N. 19 1 35.0	28.15
1	4 30 22.70	19 12 59.9	24.00	1	6 21 59.29	18 58 46.1	29.12
2	4 32 46.43	19 15 23.9	22.80	2	6 24 13.45	18 55 51.4	30.09
3	4 35 10.02	19 17 40.7	21.60	3	6 26 27.36	18 52 50.9	31.04
4	4 37 33.48	19 19 50.2	20.40	4	6 28 41.03	18 49 44.6	32.00
5	4 39 56.80	19 21 52.6	19.20	5	6 30 54.45	18 46 32.7	32.94
6	4 42 19.97	19 23 47.9	18.01	6	6 33 7.61	18 43 15.0	33.88
7	4 44 43.00	19 25 35.9	16.82	7	6 35 20.53	18 39 51.8	34.81
8	4 47 5.88	19 27 16.9	15.63	8	6 37 33.20	18 36 22.9	35.73
9	4 49 28.61	19 28 50.7	14.45	9	6 39 45.61	18 32 48.5	36.65
10	4 51 51.18	19 30 17.3	13.27	10	6 41 57.77	18 29 8.6	37.56
11	4 54 13.59	19 31 36.9	12.09	11	6 44 9.68	18 25 23.3	38.46
12	4 56 35.83	19 32 49.4	10.91	12	6 46 21.34	18 21 32.5	39.36
13	4 58 57.91	19 33 54.9	9.74	13	6 48 33.75	18 17 36.4	40.25
14	5 1 19.82	19 34 53.3	8.57	14	6 50 43.90	18 13 34.9	41.13
15	5 3 41.56	19 35 44.7	7.41	15	6 52 54.79	18 9 28.1	42.00
16	5 6 3.13	19 36 29.1	6.25	16	6 55 5.44	18 5 16.1	42.87
17	5 8 24.51	19 37 6.6	5.09	17	6 57 15.83	18 0 58.9	43.72
18	5 10 45.71	19 37 37.1	3.94	18	6 59 25.96	17 56 36.6	44.57
19	5 13 6.73	19 38 0.7	2.79	19	7 1 35.84	17 52 9.2	45.42
20	5 15 27.56	19 38 17.5	1.65	20	7 3 45.47	17 47 36.6	46.26
21	5 17 48.20	19 38 27.4	0.50	21	7 5 54.85	17 42 59.1	47.09
22	5 20 8.65	19 38 30.4	0.63	22	7 8 3.97	17 38 16.6	47.91
23	5 22 28.90	19 38 26.6	1.76	23	7 10 12.83	17 33 29.1	48.72
24	5 24 48.95	N. 19 38 16.0		24	7 12 21.45	N. 17 28 36.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 21.				SUNDAY 23.			
0	^h 7 ^m 12 ^s 21.45	N. 17° 28' 36".8	49".53	0	^h 8 ^m 50 ^s 37.43	N. 12° 12' 50".6	80".05
1	7 14 29.81	17 23 39.6	50".33	1	8 52 35.11	12 4 50.3	80".53
2	7 16 37.93	17 18 37.7	51".13	2	8 54 32.62	11 56 47.1	80".99
3	7 18 45.79	17 13 30.9	51".91	3	8 56 29.95	11 48 41.2	81".46
4	7 20 53.39	17 8 19.4	52".69	4	8 58 27.11	11 40 32.4	81".91
5	7 23 0.75	17 3 3.3	53".46	5	9 0 24.10	11 32 21.0	82".36
6	7 25 7.86	16 57 42.6	54".22	6	9 2 20.92	11 24 6.8	82".80
7	7 27 14.72	16 52 17.2	54".98	7	9 4 17.57	11 15 50.0	83".24
8	7 29 21.34	16 46 47.3	55".73	8	9 6 14.06	11 7 30.6	83".67
9	7 31 27.70	16 41 12.9	56".47	9	9 8 10.40	10 59 8.5	84".10
10	7 33 33.82	16 35 34.1	57".21	10	9 10 6.57	10 50 44.0	84".52
11	7 35 39.70	16 29 50.8	57".94	11	9 12 2.59	10 42 16.9	84".93
12	7 37 45.33	16 24 3.2	58".66	12	9 13 58.45	10 33 47.3	85".34
13	7 39 50.72	16 18 11.3	59".37	13	9 15 54.17	10 25 15.3	85".74
14	7 41 55.87	16 12 15.0	60".08	14	9 17 49.73	10 16 40.9	86".13
15	7 44 0.77	16 6 14.5	60".78	15	9 19 45.15	10 8 4.1	86".52
16	7 46 5.44	16 0 9.9	61".47	16	9 21 40.43	9 59 24.9	86".91
17	7 48 9.87	15 54 1.0	62".16	17	9 23 35.57	9 50 43.5	87".28
18	7 50 14.06	15 47 48.1	62".84	18	9 25 30.57	9 41 59.8	87".66
19	7 52 18.01	15 41 31.1	63".51	19	9 27 25.44	9 33 13.8	88".02
20	7 54 21.73	15 35 10.0	64".17	20	9 29 20.17	9 24 25.7	88".38
21	7 56 25.22	15 28 45.0	64".83	21	9 31 14.78	9 15 35.4	88".74
22	7 58 28.48	15 22 16.0	65".48	22	9 33 9.25	9 6 42.9	89".09
23	8 0 31.50	N. 15° 15' 43".2	66".13	23	9 35 3.60	N. 8° 57' 48".4	89".43
SATURDAY 22.				MONDAY 24.			
0	8 2 34.30	N. 15° 9' 6".4	66".76	0	9 36 57.83	N. 8° 48' 51".9	89".77
1	8 4 36.87	15 2 25.8	67".39	1	9 38 51.94	8 39 53.3	90".10
2	8 6 39.22	14 55 41.5	68".01	2	9 40 45.94	8 30 52.7	90".42
3	8 8 41.34	14 48 53.4	68".63	3	9 42 39.82	8 21 50.2	90".74
4	8 10 43.23	14 42 1.6	69".24	4	9 44 33.60	8 12 45.7	91".06
5	8 12 44.91	14 35 6.2	69".84	5	9 46 27.26	8 3 39.4	91".37
6	8 14 46.37	14 28 7.1	70".44	6	9 48 20.82	7 54 31.2	91".67
7	8 16 47.61	14 21 4.5	71".03	7	9 50 14.27	7 45 21.1	91".97
8	8 18 48.64	14 13 58.3	71".61	8	9 52 7.63	7 36 9.3	92".26
9	8 20 49.45	14 6 48.6	72".19	9	9 54 0.89	7 26 55.7	92".55
10	8 22 50.06	13 59 35.5	72".76	10	9 55 54.05	7 17 40.4	92".83
11	8 24 50.45	13 52 18.9	73".32	11	9 57 47.12	7 8 23.4	93".11
12	8 26 50.63	13 44 59.0	73".88	12	9 59 40.11	6 59 4.8	93".38
13	8 28 50.61	13 37 35.8	74".43	13	10 1 33.01	6 49 44.5	93".65
14	8 30 50.38	13 30 9.2	74".97	14	10 3 25.82	6 40 22.6	93".90
15	8 32 49.96	13 22 39.4	75".51	15	10 5 18.56	6 30 59.2	94".16
16	8 34 49.33	13 15 6.3	76".04	16	10 7 11.22	6 21 34.3	94".41
17	8 36 48.51	13 7 30.1	76".56	17	10 9 3.80	6 12 7.8	94".65
18	8 38 47.50	12 59 50.7	77".08	18	10 10 56.31	6 2 39.9	94".89
19	8 40 46.29	12 52 8.3	77".59	19	10 12 48.75	5 53 10.6	95".12
20	8 42 44.89	12 44 22.7	78".10	20	10 14 41.12	5 43 39.8	95".35
21	8 44 43.30	12 36 34.1	78".60	21	10 16 33.43	5 34 7.7	95".57
22	8 46 41.53	12 28 42.5	79".09	22	10 18 25.68	5 24 34.3	95".78
23	8 48 39.57	12 20 48.0	79".57	23	10 20 17.87	5 14 59.6	95".99
24	8 50 37.43	N. 12° 12' 50".6		24	10 22 10.01	N. 5° 5' 23".7	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 25.				THURSDAY 27.			
h m s	° ' "	° ' "	"	h m s	° ' "	° ' "	"
0	10 22 10.01	N. 5 5 23.7	96.20	0	11 51 43.09	S. 2 49 11.3	99.41
1	10 24 2.10	4 55 46.5	96.40	1	11 53 35.97	2 59 7.8	99.33
2	10 25 54.13	4 46 8.1	96.59	2	11 55 28.94	3 9 3.8	99.25
3	10 27 46.12	4 36 28.6	96.78	3	11 57 21.99	3 18 59.3	99.17
4	10 29 38.06	4 26 47.9	96.96	4	11 59 15.14	3 28 54.3	99.08
5	10 31 29.97	4 17 6.1	97.14	5	12 1 8.37	3 38 48.8	98.97
6	10 33 21.83	4 7 23.3	97.32	6	12 3 1.70	3 48 42.6	98.86
7	10 35 13.66	3 57 39.4	97.48	7	12 4 55.12	3 58 35.7	98.75
8	10 37 5.46	3 47 54.6	97.64	8	12 6 48.65	4 8 28.2	98.62
9	10 38 57.22	3 38 8.7	97.79	9	12 8 42.28	4 18 19.9	98.50
10	10 40 48.96	3 28 22.0	97.94	10	12 10 36.01	4 28 10.9	98.37
11	10 42 40.68	3 18 34.3	98.08	11	12 12 29.85	4 38 1.1	98.22
12	10 44 32.37	3 8 45.9	98.22	12	12 14 23.79	4 47 50.4	98.07
13	10 46 24.05	2 58 56.6	98.36	13	12 16 17.85	4 57 38.8	97.92
14	10 48 15.71	2 49 6.4	98.48	14	12 18 12.02	5 7 26.3	97.76
15	10 50 7.36	2 39 15.5	98.60	15	12 20 6.32	5 17 12.8	97.59
16	10 51 59.00	2 29 23.9	98.72	16	12 22 0.73	5 26 58.4	97.41
17	10 53 50.63	2 19 31.5	98.83	17	12 23 55.26	5 36 42.8	97.23
18	10 55 42.26	2 9 38.5	98.93	18	12 25 49.92	5 46 26.2	97.05
19	10 57 33.89	1 59 44.9	99.03	19	12 27 44.70	5 56 8.5	96.85
20	10 59 25.52	1 49 50.7	99.13	20	12 29 39.62	6 5 49.6	96.65
21	11 1 17.15	1 39 55.9	99.22	21	12 31 34.67	6 15 29.5	96.44
22	11 3 8.79	1 30 0.6	99.30	22	12 33 29.85	6 25 8.2	96.22
23	11 5 0.44	N. 1 20 4.8	99.38	23	12 35 25.17	S. 6 34 45.5	96.00
WEDNESDAY 26.				FRIDAY 28.			
h m s	° ' "	° ' "	"	h m s	° ' "	° ' "	"
0	11 6 52.11	N. 1 10 8.5	99.45	0	12 37 20.62	S. 6 44 21.5	95.77
1	11 8 43.79	1 0 11.8	99.52	1	12 39 16.22	6 53 56.1	95.54
2	11 10 35.49	0 50 14.7	99.58	2	12 41 11.96	7 3 29.4	95.29
3	11 12 27.21	0 40 17.2	99.63	3	12 43 7.85	7 13 1.1	95.05
4	11 14 18.95	0 30 19.4	99.68	4	12 45 3.88	7 22 31.4	94.79
5	11 16 10.72	0 20 21.3	99.72	5	12 47 0.06	7 32 0.1	94.53
6	11 18 2.52	0 10 23.0	99.76	6	12 48 56.40	7 41 27.3	94.25
7	11 19 54.35	N. 0 0 24.4	99.80	7	12 50 52.89	7 50 52.8	93.97
8	11 21 46.22	S. 0 9 34.4	99.82	8	12 52 49.54	8 0 16.6	93.68
9	11 23 38.12	0 19 33.3	99.84	9	12 54 46.34	8 9 38.7	93.39
10	11 25 30.07	0 29 32.3	99.86	10	12 56 43.31	8 18 59.1	93.09
11	11 27 22.06	0 39 31.5	99.86	11	12 58 40.44	8 28 17.6	92.78
12	11 29 14.09	0 49 30.6	99.86	12	13 0 37.73	8 37 34.3	92.47
13	11 31 6.17	0 59 29.8	99.86	13	13 2 35.19	8 46 49.1	92.14
14	11 32 58.31	1 9 28.9	99.85	14	13 4 32.82	8 56 1.9	91.81
15	11 34 50.50	1 19 28.0	99.83	15	13 6 30.62	9 5 12.8	91.47
16	11 36 42.74	1 29 27.0	99.81	16	13 8 28.60	9 14 21.6	91.13
17	11 38 35.05	1 39 25.9	99.78	17	13 10 26.74	9 23 28.4	90.77
18	11 40 27.42	1 49 24.6	99.75	18	13 12 25.07	9 32 33.1	90.41
19	11 42 19.85	1 59 23.1	99.72	19	13 14 23.57	9 41 35.5	90.05
20	11 44 12.35	2 9 21.4	99.67	20	13 16 22.26	9 50 35.8	89.67
21	11 46 4.93	2 19 19.4	99.61	21	13 18 21.12	9 59 33.8	89.29
22	11 47 57.57	2 29 17.1	99.55	22	13 20 20.17	10 8 29.6	88.90
23	11 49 50.29	2 39 14.4	99.49	23	13 22 19.41	10 17 22.9	88.50
24	11 51 43.09	S. 2 49 11.3		24	13 24 18.83	S. 10 26 13.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 29.				MONDAY 31.			
0	h m s 13 24 18.83	S. 10 26 13.9	88.09	0	h m s 15 3 55.83	S. 16 28 27.9	59.13
1	13 26 18.44	10 35 2.4	87.68	1	15 6 5.72	16 34 22.7	58.33
2	13 28 18.25	10 43 48.5	87.26	2	15 8 15.83	16 40 12.7	57.52
3	13 30 18.24	10 52 32.0	86.83	3	15 10 26.15	16 45 57.8	56.70
4	13 32 18.43	11 1 13.0	86.38	4	15 12 36.70	16 51 38.0	55.88
5	13 34 18.82	11 9 51.3	85.93	5	15 14 47.46	16 57 13.3	55.05
6	13 36 19.40	11 18 26.9	85.48	6	15 16 58.44	17 2 43.6	54.22
7	13 38 20.19	11 26 59.8	85.02	7	15 19 9.63	17 8 8.9	53.37
8	13 40 21.17	11 35 30.0	84.55	8	15 21 21.04	17 13 29.1	52.51
9	13 42 22.35	11 43 57.3	84.08	9	15 23 32.67	17 18 44.2	51.65
10	13 44 23.74	11 52 21.8	83.59	10	15 25 44.50	17 23 54.0	50.78
11	13 46 25.33	12 0 43.3	83.10	11	15 27 56.55	17 28 58.7	49.90
12	13 48 27.13	12 9 1.9	82.60	12	15 30 8.81	17 33 58.1	49.02
13	13 50 29.13	12 17 17.5	82.08	13	15 32 21.28	17 38 52.2	48.13
14	13 52 31.34	12 25 30.0	81.57	14	15 34 33.95	17 43 41.0	47.23
15	13 54 33.76	12 33 39.4	81.05	15	15 36 46.83	17 48 24.4	46.33
16	13 56 36.39	12 41 45.7	80.51	16	15 38 59.91	17 53 2.4	45.42
17	13 58 39.23	12 49 48.7	79.97	17	15 41 13.20	17 57 34.9	44.50
18	14 0 42.28	12 57 48.5	79.42	18	15 43 26.68	18 2 1.9	43.57
19	14 2 45.55	13 5 45.0	78.85	19	15 45 40.37	18 6 23.3	42.64
20	14 4 49.03	13 13 38.1	78.29	20	15 47 54.26	18 10 39.2	41.70
21	14 6 52.72	13 21 27.9	77.72	21	15 50 8.34	18 14 49.3	40.75
22	14 8 56.63	13 29 14.2	77.13	22	15 52 22.62	18 18 53.8	39.80
23	14 11 0.76	S. 13 36 57.0	76.54	23	15 54 37.09	S. 18 22 52.6	38.84
SUNDAY 30.				TUESDAY, NOV. 1.			
0	14 13 5.10	S. 13 44 36.2	75.94	0	15 56 51.75	S. 18 26 45.7	
1	14 15 9.66	13 52 11.9	75.33				
2	14 17 14.44	13 59 43.9	74.72				
3	14 19 19.45	14 7 12.2	74.10				
4	14 21 24.67	14 14 36.8	73.47				
5	14 23 30.12	14 21 57.6	72.82				
6	14 25 35.78	14 29 14.5	72.18				
7	14 27 41.67	14 36 27.6	71.53				
8	14 29 47.78	14 43 36.8	70.86				
9	14 31 54.11	14 50 41.9	70.19				
10	14 34 0.67	14 57 43.1	69.51				
11	14 36 7.45	15 4 40.1	68.82				
12	14 38 14.45	15 11 33.0	68.12				
13	14 40 21.67	15 18 21.7	67.42				
14	14 42 29.12	15 25 6.2	66.70				
15	14 44 36.79	15 31 46.4	65.98				
16	14 46 44.68	15 38 22.3	65.25				
17	14 48 52.80	15 44 53.8	64.52				
18	14 51 1.13	15 51 20.9	63.78				
19	14 53 9.69	15 57 43.5	63.02				
20	14 55 18.48	16 4 1.6	62.25				
21	14 57 27.48	16 10 15.2	61.48				
22	14 59 36.71	16 16 24.1	60.70				
23	15 1 46.16	16 22 28.3	59.92				
24	15 3 55.83	S. 16 28 27.9					

PHASES OF THE MOON.

	d	h	m
☾ First Quarter -	8	3	37.1
○ Full Moon -	14	18	15.4
☾ Last Quarter -	21	23	27.5
● New Moon -	30	3	28.2

	d	h
☾ Perigee -	13	6
☾ Apogee -	25	6

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
3	SUN W.	28 28 42	3254	29 53 47	3244	31 19 4	3235	32 44 32	3224
	Antares E.	29 11 52	3023	27 42 8	3031	26 12 33	3043	24 43 13	3058
	α Aquilæ E.	82 4 20	3281	80 39 47	3278	79 15 10	3275	77 50 29	3272
	Fomalhaut E.	111 19 50	3409	109 57 44	3392	108 35 18	3374	107 12 32	3358
4	SUN W.	39 54 50	3174	41 21 30	3165	42 48 21	3155	44 15 24	3144
	Venus W.	18 57 57	3265	20 22 49	3254	21 47 54	3243	23 13 12	3232
	α Aquilæ E.	70 46 25	3265	69 21 33	3266	67 56 42	3267	66 31 52	3270
	Fomalhaut E.	100 14 15	3286	98 49 47	3273	97 25 4	3260	96 0 6	3248
	α Pegasi E.	117 54 38	3014	116 24 43	3001	114 54 31	2987	113 24 2	2973
5	SUN W.	51 33 53	3091	53 2 14	3079	54 30 49	3069	55 59 37	3057
	Venus W.	30 22 55	3177	31 49 31	3166	33 16 21	3154	34 43 25	3143
	α Aquilæ E.	59 28 54	3299	58 4 42	3309	56 40 41	3321	55 16 54	3335
	Fomalhaut E.	88 52 2	3198	87 25 50	3189	85 59 28	3180	84 32 55	3172
	α Pegasi E.	105 47 23	2908	104 15 14	2896	102 42 50	2884	101 10 10	2871
6	SUN W.	63 27 18	2997	64 57 35	2984	66 28 8	2972	67 58 56	2958
	Venus W.	42 2 21	3082	43 30 53	3069	44 59 41	3056	46 28 45	3043
	Jupiter W.	20 16 59	2717	21 53 16	2705	23 29 49	2694	25 6 37	2681
	α Aquilæ E.	48 22 49	3442	47 1 20	3474	45 40 27	3511	44 20 15	3553
	Fomalhaut E.	77 18 3	3142	75 50 44	3138	74 23 20	3134	72 55 51	3131
	α Pegasi E.	93 22 55	2811	91 48 41	2800	90 14 13	2788	88 39 29	2776
7	SUN W.	75 37 7	2892	77 9 36	2878	78 42 23	2864	80 15 28	2850
	Venus W.	53 58 11	2975	55 28 55	2961	56 59 57	2946	58 31 17	2932
	Jupiter W.	33 14 51	2618	34 53 21	2605	36 32 9	2593	38 11 14	2580
	Antares W.	23 46 6	2751	25 21 38	2716	26 57 56	2684	28 34 57	2655
	Fomalhaut E.	65 38 1	3132	64 10 30	3136	62 43 4	3142	61 15 45	3149
	α Pegasi E.	80 42 5	2720	79 5 52	2710	77 29 25	2699	75 52 43	2689
8	SUN W.	88 5 27	2778	89 40 23	2764	91 15 38	2749	92 51 13	2734
	Venus W.	66 12 31	2859	67 45 42	2845	69 19 12	2836	70 53 1	2814
	Jupiter W.	46 31 16	2512	48 12 12	2498	49 53 28	2484	51 35 3	2471
	Antares W.	36 48 52	2538	38 29 12	2519	40 9 59	2500	41 51 13	2482
	Fomalhaut E.	54 2 8	3218	52 36 20	3241	51 10 59	3267	49 46 9	3297
	α Pegasi E.	67 45 53	2640	66 7 53	2632	64 29 42	2624	62 51 20	2618
	α Arietis E.	110 55 58	2519	109 15 11	2504	107 34 4	2489	105 52 36	2474
9	SUN W.	100 53 58	2661	102 31 30	2646	104 9 22	2632	105 47 33	2618
	Venus W.	78 47 2	2740	80 22 49	2725	81 58 56	2710	83 35 22	2695
	Jupiter W.	60 7 49	2402	61 51 21	2389	63 35 12	2374	65 19 24	2361
	Antares W.	50 23 40	2396	52 7 21	2379	53 51 26	2364	55 35 53	2348
	Fomalhaut E.	42 52 55	3541	41 33 16	3614	40 14 57	3698	38 58 8	3797
	α Pegasi E.	54 37 23	2593	52 58 18	2591	51 19 11	2591	49 40 3	2593
	α Arietis E.	97 20 7	2403	95 36 36	2389	93 52 46	2375	92 8 36	2362
10	SUN W.	114 3 19	2548	115 43 25	2535	117 23 50	2522	119 4 33	2509
	Venus W.	91 42 25	2624	93 20 47	2611	94 59 27	2598	96 38 25	2584
	Jupiter W.	74 5 9	2296	75 51 15	2283	77 37 39	2270	79 24 22	2259
	Antares W.	64 23 35	2276	66 10 10	2262	67 57 5	2249	69 44 20	2237
	α Pegasi E.	41 25 57	2636	39 47 51	2655	38 10 10	2679	36 33 2	2708
	α Arietis E.	83 22 59	2298	81 36 57	2286	79 50 37	2275	78 4 0	2264

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
3	SUN W.	34 10 13	3215	35 36 4	3204	37 2 8	3195	38 28 23	3185
	Antares E.	23 14 12	3078	21 45 35	3104	20 17 30	3138	18 50 7	3184
	α Aquilæ E.	76 25 45	3269	75 0 57	3268	73 36 8	3266	72 11 17	3265
	Fomalhaut E.	105 49 27	3343	104 26 5	3327	103 2 25	3312	101 38 28	3299
4	SUN W.	45 42 40	3133	47 10 9	3123	48 37 51	3113	50 5 45	3101
	Venus W.	24 38 43	3222	26 4 26	3211	27 30 22	3199	28 56 32	3188
	α Aquilæ E.	65 7 6	3274	63 42 24	3278	62 17 47	3283	60 53 16	3291
	Fomalhaut E.	94 34 54	3238	93 9 30	3227	91 43 53	3216	90 18 3	3207
	α Pegasi E.	111 53 15	2960	110 22 12	2946	108 50 52	2934	107 19 16	2920
5	SUN W.	57 28 40	3045	58 57 57	3033	60 27 29	3021	61 57 16	3009
	Venus W.	36 10 43	3131	37 38 15	3119	39 6 2	3106	40 34 4	3094
	α Aquilæ E.	53 53 23	3350	52 30 9	3369	51 7 17	3390	49 44 49	3414
	Fomalhaut E.	83 6 13	3165	81 39 22	3158	80 12 23	3152	78 45 17	3146
	α Pegasi E.	99 37 14	2859	98 4 2	2847	96 30 35	2835	94 56 52	2824
6	SUN W.	69 30 1	2946	71 1 22	2932	72 33 0	2919	74 4 55	2905
	Venus W.	47 58 5	3030	49 27 41	3016	50 57 34	3002	52 27 44	2989
	Jupiter W.	26 43 42	2669	28 21 4	2656	29 58 43	2644	31 36 38	2631
	α Aquilæ E.	43 0 50	3601	41 42 17	3656	40 24 43	3719	39 8 16	3792
	Fomalhaut E.	71 28 19	3129	70 0 45	3128	68 33 10	3128	67 5 35	3129
	α Pegasi E.	87 4 30	2765	85 29 16	2753	83 53 47	2743	82 18 4	2731
7	SUN W.	81 48 51	2836	83 22 32	2821	84 56 32	2808	86 30 50	2793
	Venus W.	60 2 55	2918	61 34 51	2904	63 7 5	2889	64 39 38	2873
	Jupiter W.	39 50 37	2566	41 30 19	2553	43 10 19	2539	44 50 38	2525
	Antares W.	30 12 37	2629	31 50 53	2605	33 29 41	2582	35 9 2	2560
	Fomalhaut E.	59 48 35	3158	58 21 35	3169	56 54 49	3183	55 28 19	3199
	α Pegasi E.	74 15 48	2678	72 38 38	2669	71 1 16	2659	69 23 41	2649
8	SUN W.	94 27 7	2720	96 3 20	2705	97 39 54	2691	99 16 46	2676
	Venus W.	72 27 10	2799	74 1 39	2785	75 36 27	2769	77 12 35	2755
	Jupiter W.	53 16 57	2457	54 59 11	2443	56 41 44	2430	58 24 36	2415
	Antares W.	43 32 52	2463	45 14 57	2445	46 57 27	2428	48 40 22	2412
	Fomalhaut E.	48 21 54	3333	46 58 21	3375	45 35 36	3422	44 13 45	3477
	α Pegasi E.	61 12 49	2610	59 34 8	2604	57 55 19	2600	56 16 24	2596
	α Arietis E.	104 10 47	2460	102 28 38	2446	100 46 8	2431	99 3 17	2417
9	SUN W.	107 26 4	2604	109 4 54	2590	110 44 3	2575	112 23 32	2562
	Venus W.	85 12 8	2681	86 49 14	2667	88 26 38	2652	90 4 22	2638
	Jupiter W.	67 3 54	2348	68 48 44	2335	70 33 53	2321	72 19 22	2309
	Antares W.	57 20 42	2333	59 5 54	2318	60 51 27	2304	62 37 20	2289
	Fomalhaut E.	37 43 3	3912	36 29 55	4044	35 18 59	4198	34 10 31	4378
	α Pegasi E.	48 0 58	2596	46 21 58	2602	44 43 5	2610	43 4 23	2621
	α Arietis E.	90 24 6	2348	88 39 17	2335	86 54 9	2323	85 8 43	2311
10	SUN W.	120 45 33	2497	122 26 51	2485	124 8 26	2473	125 50 17	2461
	Venus W.	98 17 42	2572	99 57 15	2559	101 37 6	2547	103 17 14	2535
	Jupiter W.	81 11 22	2247	82 58 40	2236	84 46 14	2224	86 34 6	2214
	Antares W.	71 31 53	2224	73 19 45	2212	75 7 55	2200	76 56 22	2189
	α Pegasi E.	34 56 33	2745	33 20 53	2790	31 46 12	2845	30 12 42	2912
	α Arietis E.	76 17 7	2253	74 29 59	2243	72 42 35	2233	70 54 57	2224

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10	Aldebaran E.	116° 37' 9"	2243	114° 49' 46"	2231	113° 2' 4"	2219	111° 14' 4"	2206
11	SUN W.	127 32 25	2450	129 14 48	2440	130 57 26	2430	132 40 18	2420
	Venus W.	104 57 38	2525	106 38 17	2513	108 19 12	2503	110 0 21	2493
	Jupiter W.	88 22 13	2203	90 10 36	2193	91 59 14	2183	93 48 7	2174
	Antares W.	78 45 6	2178	80 34 6	2168	82 23 22	2158	84 12 53	2149
	α Arietis E.	69 7 5	2215	67 19 0	2207	65 30 43	2200	63 42 15	2193
	Aldebaran E.	102 9 38	2151	100 19 56	2140	98 29 58	2131	96 39 46	2122
	Mars E.	111 32 32	2198	109 44 2	2188	107 55 16	2177	106 6 14	2168
12	Jupiter W.	102 55 44	2136	104 45 49	2130	106 36 3	2124	108 26 26	2119
	Antares W.	93 23 43	2110	95 14 27	2105	97 5 19	2099	98 56 20	2095
	α Aquilæ W.	46 4 28	2896	47 36 52	2842	49 10 25	2794	50 45 0	2751
	α Arietis E.	54 37 49	2172	52 48 39	2171	50 59 28	2171	49 10 16	2172
	Aldebaran E.	87 25 29	2083	85 34 4	2077	83 42 29	2072	81 50 46	2067
	Mars E.	96 57 42	2127	95 7 24	2120	93 16 55	2114	91 26 18	2109
13	α Aquilæ W.	58 50 20	2596	60 29 20	2575	62 8 49	2557	63 48 43	2541
	Fomalhaut W.	34 4 48	3993	35 16 35	3815	36 31 22	3661	37 48 51	3527
	α Arietis E.	40 5 27	2202	38 17 2	2214	36 28 56	2229	34 41 12	2248
	Aldebaran E.	72 30 36	2052	70 38 22	2051	68 46 7	2050	66 53 51	2050
	Mars E.	82 11 23	2091	80 20 10	2090	78 28 55	2089	76 37 38	2089
	Pollux E.	114 46 9	2154	112 56 32	2150	111 6 49	2147	109 17 1	2145
14	α Aquilæ W.	72 12 51	2493	73 54 15	2489	75 35 44	2486	77 17 17	2486
	Fomalhaut W.	44 47 41	3080	46 16 15	3022	47 46 1	2971	49 16 50	2927
	α Pegasi W.	25 16 49	3060	26 45 47	2942	28 17 13	2846	29 50 42	2767
	Aldebaran E.	57 33 1	2063	55 41 5	2068	53 49 16	2073	51 57 35	2079
	Mars E.	67 21 33	2098	65 30 31	2103	63 39 36	2107	61 48 48	2113
	Pollux E.	100 7 41	2148	98 17 55	2151	96 28 14	2156	94 38 40	2161
15	α Aquilæ W.	85 44 27	2506	87 25 32	2515	89 6 25	2525	90 47 4	2536
	Fomalhaut W.	57 2 36	2784	58 37 24	2767	60 12 35	2754	61 48 3	2744
	α Pegasi W.	37 58 37	2543	39 38 51	2520	41 19 37	2502	43 0 48	2487
	Aldebaran E.	42 41 57	2121	40 51 29	2132	39 1 19	2143	37 11 25	2155
	Mars E.	52 37 18	2151	50 47 37	2161	48 58 11	2172	47 9 1	2183
	Pollux E.	85 33 13	2200	83 44 45	2210	81 56 32	2221	80 8 36	2233
16	α Aquilæ W.	99 5 54	2611	100 44 34	2629	102 22 49	2649	104 0 37	2671
	Fomalhaut W.	69 47 42	2728	71 23 44	2731	72 59 43	2735	74 35 36	2742
	α Pegasi W.	51 30 8	2463	53 12 13	2465	54 54 16	2468	56 36 14	2473
	Mars E.	38 7 41	2248	36 20 25	2263	34 33 32	2280	32 47 3	2296
	Pollux E.	71 13 42	2304	69 27 48	2321	67 42 19	2337	65 57 13	2355
	Regulus E.	107 40 53	2222	105 52 58	2237	104 5 25	2250	102 18 12	2264
17	Fomalhaut W.	82 32 18	2793	84 6 55	2808	85 41 13	2824	87 15 11	2839
	α Pegasi W.	65 3 37	2518	66 44 25	2530	68 24 57	2543	70 5 11	2556
	α Arietis W.	21 48 59	2776	23 23 58	2734	24 59 53	2703	26 36 29	2681
	Pollux E.	57 18 38	2456	55 36 23	2479	53 54 40	2503	52 13 31	2527
	Regulus E.	93 27 42	2344	91 42 46	2361	89 58 15	2378	88 14 9	2396
18	Fomalhaut W.	94 59 27	2933	96 31 4	2955	98 2 13	2977	99 32 55	3001
	α Pegasi W.	78 21 27	2632	79 59 39	2649	81 37 28	2665	83 14 55	2682
	α Arietis W.	34 44 10	2652	36 21 54	2656	37 59 34	2661	39 37 6	2669

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10	Aldebaran E.	109° 25' 45" 2194		107° 37' 9" 2182		105° 48' 15" 2172		103° 59' 5" 2161	
11	SUN W.	134 23 24 2411		136 6 43 2403		137 50 14 2394		139 33 57 2387	
	Venus W.	111 41 44 2484		113 23 20 2475		115 5 9 2467		116 47 9 2458	
	Jupiter W.	95 37 13 2165		97 26 33 2157		99 16 5 2149		101 5 49 2142	
	Antares W.	86 2 38 2140		87 52 37 2132		89 42 47 2124		91 33 10 2117	
	α Arietis E.	61 53 37 2187		60 4 50 2182		58 15 56 2178		56 26 55 2175	
	Aldebaran E.	94 49 20 2113		92 58 40 2105		91 7 48 2097		89 16 44 2090	
	Mars E.	104 16 58 2159		102 27 28 2150		100 37 45 2141		98 47 49 2134	
12	Jupiter W.	110 16 56 2115		112 7 33 2111		113 58 16 2108		115 49 3 2105	
	Antares W.	100 47 27 2090		102 38 41 2087		104 30 0 2085		106 21 22 2083	
	α Aquilæ W.	52 20 32 2713		53 56 54 2678		55 34 3 2648		57 11 53 2621	
	α Arietis E.	47 21 6 2174		45 31 59 2178		43 42 59 2184		41 54 7 2192	
	Aldebaran E.	79 58 56 2062		78 6 58 2059		76 14 55 2056		74 22 47 2053	
	Mars E.	89 35 32 2103		87 44 38 2099		85 53 38 2096		84 2 33 2093	
13	α Aquilæ W.	65 29 0 2527		67 9 36 2515		68 50 29 2505		70 31 35 2498	
	Fomalhaut W.	39 8 45 3412		40 30 48 3312		41 54 46 3224		43 20 28 3147	
	α Arietis E.	32 53 56 2271		31 7 13 2298		29 21 11 2331		27 35 57 2372	
	Aldebaran E.	65 1 35 2051		63 9 21 2053		61 17 10 2056		59 25 3 2059	
	Mars E.	74 46 22 2089		72 55 5 2090		71 3 51 2092		69 12 40 2095	
	Pollux E.	107 27 10 2143		105 37 17 2143		103 47 23 2144		101 57 31 2145	
14	α Aquilæ W.	78 58 50 2487		80 40 22 2489		82 21 50 2493		84 3 13 2499	
	Fomalhaut W.	50 48 34 2889		52 21 7 2856		53 54 22 2828		55 28 13 2804	
	α Pegasi W.	31 25 53 2702		33 2 30 2650		34 40 17 2607		36 19 3 2572	
	Aldebaran E.	50 6 4 2086		48 14 43 2094		46 23 35 2102		44 32 39 2111	
	Mars E.	59 58 9 2119		58 7 39 2126		56 17 20 2134		54 27 13 2142	
	Pollux E.	92 49 14 2167		90 59 57 2174		89 10 50 2182		87 21 55 2190	
15	α Aquilæ W.	92 27 28 2548		94 7 35 2562		95 47 22 2577		97 26 49 2593	
	Fomalhaut W.	63 23 44 2736		64 59 36 2731		66 35 35 2728		68 11 38 2727	
	α Pegasi W.	44 42 19 2477		46 24 4 2470		48 6 0 2465		49 48 2 2463	
	Aldebaran E.	35 21 49 2168		33 32 34 2182		31 43 39 2196		29 55 5 2212	
	Mars E.	45 20 7 2195		43 31 32 2207		41 43 15 2220		39 55 17 2235	
	Pollux E.	78 20 58 2245		76 33 38 2259		74 46 38 2273		72 59 59 2288	
16	α Aquilæ W.	105 37 56 2694		107 14 44 2718		108 51 0 2744		110 26 42 2771	
	Fomalhaut W.	76 11 20 2749		77 46 55 2759		79 22 17 2769		80 57 25 2781	
	α Pegasi W.	58 18 5 2480		59 59 46 2488		61 41 16 2497		63 22 34 2507	
	Mars E.	31 0 58 2314		29 15 18 2333		27 30 6 2352		25 45 22 2372	
	Pollux E.	64 12 34 2374		62 28 22 2394		60 44 38 2414		59 1 23 2435	
	Regulus E.	100 31 20 2280		98 44 51 2296		96 58 45 2311		95 13 1 2328	
17	Fomalhaut W.	88 48 48 2856		90 22 4 2874		91 54 56 2893		93 27 24 2913	
	α Pegasi W.	71 45 7 2570		73 24 43 2585		75 3 58 2600		76 42 54 2616	
	α Arietis W.	28 13 34 2666		29 51 0 2657		31 28 38 2652		33 6 22 2650	
	Pollux E.	50 32 55 2552		48 52 54 2579		47 13 30 2607		45 34 44 2635	
	Regulus E.	86 30 28 2413		84 47 12 2431		83 4 22 2450		81 21 58 2467	
18	Fomalhaut W.	101 3 7 3024		102 32 51 3048		104 2 4 3074		105 30 45 3101	
	α Pegasi W.	84 51 59 2700		86 28 39 2717		88 4 56 2735		89 40 49 2754	
	α Arietis W.	41 14 28 2678		42 51 38 2687		44 28 35 2698		46 5 18 2710	

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18	Pollux E.	43 56 37	2665	42 19 10	2697	40 42 26	2730	39 6 26	2766
	Regulus E.	79 39 59	2486	77 58 26	2504	76 17 19	2523	74 36 38	2542
	SUN E.	136 59 34	2797	135 25 2	2816	133 50 55	2836	132 17 14	2855
19	α Pegasi W.	91 16 17	2772	92 51 22	2790	94 26 3	2809	96 0 19	2827
	α Arietis W.	47 41 45	2722	49 17 56	2734	50 53 51	2747	52 29 28	2761
	Pollux E.	31 19 11	2988	29 48 43	3045	28 19 26	3109	26 51 28	3182
	Regulus E.	66 19 40	2635	64 41 33	2654	63 3 51	2672	61 26 34	2691
	SUN E.	124 35 5	2954	123 3 54	2973	121 33 7	2992	120 2 44	3011
20	α Arietis W.	60 23 5	2829	61 56 55	2844	63 30 26	2858	65 3 39	2871
	Aldebaran W.	26 41 47	2776	28 16 46	2791	29 51 26	2804	31 25 49	2818
	Mars W.	16 30 51	2841	18 4 25	2846	19 37 54	2852	21 11 15	2859
	Regulus E.	53 26 16	2781	51 51 23	2799	50 16 54	2816	48 42 47	2834
	SUN E.	112 36 38	3102	111 8 31	3121	109 40 47	3138	108 13 23	3154
21	α Arietis W.	72 45 27	2937	74 16 59	2950	75 48 15	2962	77 19 16	2974
	Aldebaran W.	39 13 18	2884	40 45 57	2897	42 18 20	2909	43 50 28	2922
	Mars W.	28 55 10	2909	30 27 18	2920	31 59 12	2929	33 30 54	2940
	Regulus E.	40 57 46	2918	39 25 50	2935	37 54 16	2951	36 23 2	2969
	SUN E.	101 1 18	3234	99 35 49	3248	98 10 37	3263	96 45 42	3276
22	α Arietis W.	84 50 46	3027	86 20 25	3038	87 49 51	3047	89 19 5	3056
	Aldebaran W.	51 27 25	2976	52 58 8	2985	54 28 40	2995	55 58 59	3003
	Mars W.	41 6 13	2988	42 36 41	2996	44 6 59	3004	45 37 7	3012
	SUN E.	89 44 55	3338	88 21 27	3349	86 58 12	3359	85 35 9	3370
23	α Arietis W.	96 42 39	3096	98 10 54	3102	99 39 1	3109	101 7 0	3115
	Aldebaran W.	63 28 4	3040	64 57 27	3047	66 26 42	3052	67 55 50	3058
	Mars W.	53 5 29	3045	54 34 46	3050	56 3 57	3055	57 33 2	3060
	Pollux W.	23 33 15	3643	24 51 3	3584	26 9 55	3535	27 29 40	3494
	SUN E.	78 42 33	3411	77 20 29	3419	75 58 34	3425	74 36 45	3430
24	Aldebaran W.	75 20 4	3077	76 48 42	3079	78 17 17	3082	79 45 49	3083
	Mars W.	64 57 15	3075	66 25 55	3076	67 54 34	3078	69 23 10	3079
	Pollux W.	34 17 56	3360	35 40 58	3343	37 4 19	3328	38 27 58	3313
	SUN E.	67 49 8	3453	66 27 51	3455	65 6 36	3457	63 45 24	3459
25	Aldebaran W.	87 8 10	3085	88 36 38	3085	90 5 6	3083	91 33 36	3082
	Mars W.	76 46 7	3077	78 14 44	3075	79 43 24	3074	81 12 5	3072
	Pollux W.	45 29 57	3258	46 54 58	3249	48 20 9	3240	49 45 31	3231
	SUN E.	56 59 46	3461	55 38 38	3461	54 17 30	3460	52 56 21	3457
26	Aldebaran W.	98 56 44	3068	100 25 33	3065	101 54 26	3061	103 23 23	3056
	Mars W.	88 36 24	3955	90 5 29	3951	91 34 39	3947	93 3 54	3941
	Pollux W.	56 54 47	3192	58 21 6	3183	59 47 35	3176	61 14 13	3168
	Regulus W.	19 54 14	3227	21 19 51	3204	22 45 55	3183	24 12 25	3165
	SUN E.	46 9 56	3443	44 48 28	3439	43 26 56	3435	42 5 19	3430
27	Mars W.	100 31 50	3013	102 1 47	3006	103 31 52	3000	105 2 5	2993
	Pollux W.	68 29 41	3129	69 57 15	3122	71 24 58	3114	72 52 51	3106
	Regulus W.	31 29 42	3095	32 57 58	3084	34 26 27	3073	35 55 9	3062
	SUN E.	35 15 48	3402	33 53 34	3395	32 31 12	3389	31 8 43	3383

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18	Pollux E.	37 31 14	2804	35 56 51	2844	34 23 20	2888	32 50 46	2935
	Regulus E.	72 56 23	2560	71 16 33	2580	69 37 10	2598	67 58 12	2617
	SUN E.	130 43 58	2875	129 11 7	2895	127 38 41	2915	126 6 41	2934
19	α Pegasi W.	97 34 12	2846	99 7 40	2865	100 40 44	2884	102 13 24	2902
	α Arietis W.	54 4 47	2774	55 39 49	2788	57 14 32	2802	58 48 58	2816
	Pollux E.	25 24 57	3265	24 0 4	3361	22 37 3	3474	21 16 10	3610
	Regulus E.	59 49 42	2710	58 13 15	2727	56 37 11	2746	55 1 32	2763
	SUN E.	118 32 45	3030	117 3 9	3048	115 33 56	3067	114 5 6	3085
20	α Arietis W.	66 36 35	2884	68 9 14	2898	69 41 35	2911	71 13 39	2924
	Aldebaran W.	32 59 54	2831	34 33 41	2845	36 7 11	2859	37 40 23	2872
	Mars W.	22 44 26	2868	24 17 26	2877	25 50 14	2887	27 22 49	2898
	Regulus E.	47 9 3	2851	45 35 41	2868	44 2 41	2885	42 30 3	2901
	SUN E.	106 46 19	3171	105 19 35	3188	103 53 11	3203	102 27 6	3218
21	α Arietis W.	78 50 2	2985	80 20 34	2996	81 50 52	3007	83 20 56	3018
	Aldebaran W.	45 22 19	2933	46 53 56	2943	48 25 20	2955	49 56 29	2966
	Mars W.	35 2 22	2950	36 33 38	2959	38 4 42	2969	39 35 33	2978
	Regulus E.	34 52 10	2985	33 21 39	3002	31 51 29	3021	30 21 42	3038
	SUN E.	95 21 2	3290	93 56 39	3302	92 32 30	3314	91 8 35	3327
22	α Arietis W.	90 48 8	3065	92 17 1	3073	93 45 43	3081	95 14 16	3089
	Aldebaran W.	57 29 8	3012	58 59 6	3019	60 28 55	3027	61 58 34	3034
	Mars W.	47 7 4	3019	48 36 53	3026	50 6 33	3033	51 36 5	3039
	SUN E.	84 12 18	3379	82 49 37	3387	81 27 6	3396	80 4 45	3404
23	α Arietis W.	102 34 52	3121	104 2 36	3125	105 30 15	3131	106 57 47	3135
	Aldebaran W.	69 24 51	3062	70 53 47	3067	72 22 37	3070	73 51 23	3074
	Mars W.	59 2 1	3063	60 30 56	3067	61 59 46	3070	63 28 32	3073
	Pollux W.	28 50 11	3459	30 11 21	3429	31 33 5	3403	32 55 18	3380
	SUN E.	73 15 3	3435	71 53 26	3441	70 31 56	3445	69 10 30	3449
24	Aldebaran W.	81 14 19	3084	82 42 48	3086	84 11 15	3085	85 39 43	3086
	Mars W.	70 51 46	3079	72 20 21	3080	73 48 55	3079	75 17 31	3078
	Pollux W.	39 51 54	3300	41 16 5	3288	42 40 30	3278	44 5 7	3267
	SUN E.	62 24 14	3461	61 3 6	3462	59 41 59	3462	58 20 52	3462
25	Aldebaran W.	93 2 8	3079	94 30 43	3078	95 59 20	3075	97 28 0	3072
	Mars W.	82 40 49	3069	84 9 37	3065	85 38 29	3063	87 7 24	3059
	Pollux W.	51 11 3	3223	52 36 45	3215	54 2 36	3207	55 28 37	3199
	SUN E.	51 35 9	3456	50 13 56	3453	48 52 39	3450	47 31 19	3447
26	Aldebaran W.	104 52 26	3052	106 21 34	3048	107 50 48	3043	109 20 8	3037
	Mars W.	94 33 16	3036	96 2 44	3031	97 32 19	3025	99 2 1	3019
	Pollux W.	62 41 0	3161	64 7 56	3153	65 35 1	3145	67 2 16	3137
	Regulus W.	25 39 16	3148	27 6 27	3133	28 33 56	3119	30 1 42	3108
	SUN E.	40 43 36	3426	39 21 49	3420	37 59 55	3414	36 37 54	3409
27	Mars W.	106 32 27	2986	108 2 57	2978	109 33 37	2971	111 4 26	2964
	Pollux W.	74 20 53	3097	75 49 6	3090	77 17 28	3081	78 46 1	3074
	Regulus W.	37 24 5	3052	38 53 13	3043	40 22 33	3032	41 52 6	3022
	SUN E.	29 46 7	3375	28 23 22	3368	27 0 29	3360	25 37 27	3352

AIRY'S Day Numbers—For correcting the Places of the Fixed Stars.

At Mean Midnight,

Logarithms of

Value of
L

Day of the Month.

E

F

G

H

L

1	1.63871	1.45046	0.33706	1.49781	31.835
2	1.63818	1.45577	0.33740	1.49797	31.426
3	1.63759	1.46100	0.33773	1.49815	31.025
4	1.63694	1.46615	0.33806	1.49833	30.631
5	1.63624	1.47123	0.33840	1.49852	30.244
6	1.63548	1.47623	0.33874	1.49872	29.864
7	1.63466	1.48116	0.33908	1.49893	29.490
8	1.63379	1.48601	0.33943	1.49914	29.123
9	1.63287	1.49079	0.33978	1.49936	28.762
10	1.63189	1.49549	0.34014	1.49959	28.409
11	1.63085	1.50012	0.34050	1.49983	28.063
12	1.62976	1.50467	0.34087	1.50007	27.725
13	1.62860	1.50915	0.34123	1.50032	27.396
14	1.62738	1.51356	0.34160	1.50057	27.075
15	1.62611	1.51790	0.34197	1.50083	26.761
16	1.62478	1.52216	0.34234	1.50110	26.455
17	1.62340	1.52635	0.34272	1.50137	26.157
18	1.62195	1.53048	0.34310	1.50165	25.867
19	1.62045	1.53453	0.34349	1.50193	25.584
20	1.61889	1.53851	0.34388	1.50222	25.310
21	1.61727	1.54243	0.34428	1.50252	25.043
22	1.61560	1.54626	0.34468	1.50282	24.786
23	1.61386	1.55002	0.34508	1.50313	24.538
24	1.61206	1.55372	0.34549	1.50344	24.299
25	1.61020	1.55736	0.34590	1.50375	24.067
26	1.60828	1.56094	0.34632	1.50406	23.843
27	1.60629	1.56446	0.34675	1.50438	23.628
28	1.60425	1.56789	0.34718	1.50471	23.422
29	1.60215	1.57125	0.34762	1.50504	23.225
30	1.59998	1.57455	0.34806	1.50537	23.038
31	1.59776	1.57778	0.34851	1.50570	22.859
32	1.59548	1.58094	0.34896	1.50603	22.689

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .238545.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of					Days.		
	A	B	C	D				
1	+1.2677	+0.5071	+9.9881	+0.8105	11 ^h 16 ^m 16 ^s .06	193	274	.7502
2	1.2664	0.5516	9.9889	0.8113	11 12 20.15	194	275	.7529
3	1.2651	0.5918	9.9896	0.8122	11 8 24.25	195	276	.7557
4	+1.2635	+0.6286	+9.9904	+0.8130	11 4 28.34	196	277	.7584
5	1.2619	0.6624	9.9911	0.8140	11 0 32.44	197	278	.7611
6	1.2601	0.6936	9.9919	0.8149	10 56 36.54	198	279	.7639
7	+1.2581	+0.7227	+9.9926	+0.8159	10 52 40.63	199	280	.7667
8	1.2561	0.7498	9.9934	0.8169	10 48 44.72	200	281	.7694
9	1.2539	0.7752	9.9942	0.8180	10 44 48.82	201	282	.7721
10	+1.2515	+0.7991	+9.9950	+0.8191	10 40 52.91	202	283	.7748
11	1.2490	0.8216	9.9958	0.8202	10 36 57.00	203	284	.7776
12	1.2464	0.8429	9.9966	0.8214	10 33 1.10	204	285	.7803
13	+1.2436	+0.8631	+9.9974	+0.8225	10 29 5.19	205	286	.7830
14	1.2406	0.8823	9.9982	0.8238	10 25 9.28	206	287	.7858
15	1.2375	0.9005	9.9990	0.8250	10 21 13.38	207	288	.7885
16	+1.2343	+0.9179	+9.9998	+0.8263	10 17 17.47	208	289	.7913
17	1.2308	0.9346	0.0007	0.8276	10 13 21.56	209	290	.7940
18	1.2273	0.9504	0.0015	0.8289	10 9 25.65	210	291	.7967
19	+1.2235	+0.9657	+0.0023	+0.8302	10 5 29.74	211	292	.7995
20	1.2196	0.9802	0.0032	0.8316	10 1 33.83	212	293	.8022
21	1.2155	0.9942	0.0041	0.8330	9 57 37.93	213	294	.8049
22	+1.2113	+1.0077	+0.0050	+0.8344	9 53 42.02	214	295	.8077
23	1.2069	1.0206	0.0058	0.8358	9 49 46.11	215	296	.8104
24	1.2023	1.0330	0.0067	0.8372	9 45 50.21	216	297	.8132
25	+1.1975	+1.0449	+0.0076	+0.8387	9 41 54.30	217	298	.8159
26	1.1925	1.0565	0.0086	0.8401	9 37 58.39	218	299	.8186
27	1.1873	1.0675	0.0095	0.8416	9 34 2.49	219	300	.8214
28	+1.1819	+1.0782	+0.0104	+0.8431	9 30 6.58	220	301	.8241
29	1.1763	1.0885	0.0114	0.8446	9 26 10.67	221	302	.8268
30	1.1705	1.0985	0.0123	0.8461	9 22 14.77	222	303	.8296
31	1.1645	1.1081	0.0133	0.8476	9 18 18.86	223	304	.8323
32	+1.1583	+1.1173	+0.0143	+0.8491	9 14 22.95	224	305	.8351

* Add .0011 if Fraction be required for the time *t*, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Tues.	1	14 27 45.11	9.821	S. 14 36 49.4	47.83	1 7.00	16 18.19	0.035
Wed.	2	14 31 41.22	9.855	14 55 50.1	47.23	1 7.12	16 18.64	0.002
Thur.	3	14 35 38.13	9.888	15 14 36.2	46.61	1 7.23	16 18.28	0.032
Frid.	4	14 39 35.86	9.922	15 33 7.3	45.97	1 7.35	16 17.11	0.065
Sat.	5	14 43 34.39	9.956	15 51 22.9	45.32	1 7.47	16 15.14	0.099
Sun.	6	14 47 33.74	9.990	16 9 22.6	44.65	1 7.59	16 12.35	0.133
Mon.	7	14 51 33.90	10.024	16 27 6.0	43.96	1 7.71	16 8.76	0.167
Tues.	8	14 55 34.89	10.058	16 44 32.7	43.26	1 7.83	16 4.33	0.201
Wed.	9	14 59 36.69	10.093	17 1 42.3	42.54	1 7.95	15 59.10	0.236
Thur.	10	15 3 39.34	10.128	17 18 34.4	41.80	1 8.07	15 53.02	0.270
Frid.	11	15 7 42.81	10.163	17 35 8.6	41.05	1 8.19	15 46.13	0.305
Sat.	12	15 11 47.13	10.198	17 51 24.6	40.28	1 8.31	15 38.38	0.340
Sun.	13	15 15 52.30	10.233	18 7 21.9	39.49	1 8.43	15 29.80	0.375
Mon.	14	15 19 58.32	10.269	18 23 0.1	38.69	1 8.54	15 20.36	0.411
Tues.	15	15 24 5.19	10.304	18 38 19.0	37.87	1 8.66	15 10.07	0.447
Wed.	16	15 28 12.91	10.340	18 53 18.1	37.04	1 8.78	14 58.93	0.482
Thur.	17	15 32 21.48	10.375	19 7 57.0	36.19	1 8.89	14 46.95	0.517
Frid.	18	15 36 30.91	10.410	19 22 15.4	35.33	1 9.01	14 34.10	0.552
Sat.	19	15 40 41.17	10.445	19 36 12.9	34.45	1 9.12	14 20.44	0.587
Sun.	20	15 44 52.27	10.480	19 49 49.1	33.56	1 9.23	14 5.95	0.622
Mon.	21	15 49 4.21	10.514	20 3 3.6	32.65	1 9.34	13 50.60	0.656
Tues.	22	15 53 16.95	10.547	20 15 56.1	31.72	1 9.45	13 34.47	0.690
Wed.	23	15 57 30.49	10.580	20 28 26.2	30.78	1 9.56	13 17.52	0.723
Thur.	24	16 1 44.83	10.613	20 40 33.5	29.82	1 9.67	12 59.78	0.755
Frid.	25	16 5 59.94	10.645	20 52 17.7	28.85	1 9.77	12 41.29	0.787
Sat.	26	16 10 15.82	10.677	21 3 38.5	27.87	1 9.87	12 22.01	0.818
Sun.	27	16 14 32.44	10.708	21 14 35.5	26.88	1 9.97	12 2.00	0.849
Mon.	28	16 18 49.79	10.738	21 25 8.5	25.87	1 10.07	11 41.27	0.879
Tues.	29	16 23 7.84	10.766	21 35 17.1	24.84	1 10.16	11 19.83	0.907
Wed.	30	16 27 26.57	10.793	21 45 0.9	23.81	1 10.25	10 57.72	0.934
Thur.	31	16 31 45.94		S. 21 54 19.8		1 10.34	10 34.97	

Mean Time of the Semidiameter passing may be found by subtracting 0.19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		h m s	° ' "	' "	m s	h m s
Tues.	1	14 27 47.78	S. 14 37 2.4	16 9.8	16 18.20	14 44 5.98
Wed.	2	14 31 43.90	14 56 3.0	16 10.1	16 18.64	14 48 2.54
Thur.	3	14 35 40.82	15 14 48.9	16 10.3	16 18.27	14 51 59.09
Frid.	4	14 39 38.55	15 33 19.8	16 10.6	16 17.09	14 55 55.64
Sat.	5	14 43 37.09	15 51 35.2	16 10.8	16 15.11	14 59 52.20
Sun.	6	14 47 36.44	16 9 34.7	16 11.1	16 12.31	15 3 48.75
Mon.	7	14 51 36.60	16 27 17.9	16 11.3	16 8.71	15 7 45.31
Tues.	8	14 55 37.58	16 44 44.3	16 11.6	16 4.28	15 11 41.86
Wed.	9	14 59 39.38	17 1 53.7	16 11.8	15 59.04	15 15 38.42
Thur.	10	15 3 42.02	17 18 45.5	16 12.0	15 52.95	15 19 34.97
Frid.	11	15 7 45.48	17 35 19.4	16 12.2	15 46.05	15 23 31.53
Sat.	12	15 11 49.79	17 51 35.1	16 12.5	15 38.29	15 27 28.08
Sun.	13	15 15 54.94	18 7 32.1	16 12.7	15 29.70	15 31 24.64
Mon.	14	15 20 0.94	18 23 10.0	16 12.9	15 20.25	15 35 21.19
Tues.	15	15 24 7.79	18 38 28.6	16 13.1	15 9.96	15 39 17.75
Wed.	16	15 28 15.49	18 53 27.3	16 13.3	14 58.81	15 43 14.30
Thur.	17	15 32 24.04	19 8 5.9	16 13.5	14 46.82	15 47 10.86
Frid.	18	15 36 33.44	19 22 24.0	16 13.7	14 33.97	15 51 7.41
Sat.	19	15 40 43.67	19 36 21.1	16 13.9	14 20.30	15 55 3.97
Sun.	20	15 44 54.73	19 49 57.0	16 14.1	14 5.80	15 59 0.53
Mon.	21	15 49 6.63	20 3 11.1	16 14.3	13 50.45	16 2 57.08
Tues.	22	15 53 19.33	20 16 3.2	16 14.5	13 34.31	16 6 53.64
Wed.	23	15 57 32.83	20 28 33.0	16 14.6	13 17.36	16 10 50.19
Thur.	24	16 1 47.13	20 40 39.9	16 14.8	12 59.62	16 14 46.75
Frid.	25	16 6 2.19	20 52 23.8	16 15.0	12 41.12	16 18 43.31
Sat.	26	16 10 18.02	21 3 44.2	16 15.1	12 21.84	16 22 39.86
Sun.	27	16 14 34.59	21 14 40.9	16 15.3	12 1.83	16 26 36.42
Mon.	28	16 18 51.88	21 25 13.5	16 15.5	11 41.10	16 30 32.98
Tues.	29	16 23 9.87	21 35 21.8	16 15.6	11 19.66	16 34 29.53
Wed.	30	16 27 28.54	21 45 5.3	16 15.8	10 57.55	16 38 26.09
Thur.	31	16 31 47.85	S. 21 54 23.9	16 15.9	10 34.80	16 42 22.65

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	219 20 54.8	N. 0° 40'	9.9963943	15 22.0	15 26.0	56 17.9	56 32.5
2	220 21 4.4	0° 51'	9.9962824	15 30.0	15 34.0	56 47.2	57 1.9
3	221 21 15.7	0° 60'	9.9961711	15 38.0	15 42.0	57 16.7	57 31.4
4	222 21 28.6	0° 69'	9.9960604	15 46.1	15 50.1	57 46.1	58 0.8
5	223 21 43.0	0° 73'	9.9959505	15 54.0	15 57.9	58 15.3	58 29.6
6	224 21 58.9	0° 75'	9.9958416	16 1.7	16 5.4	58 43.6	58 57.1
7	225 22 16.2	0° 74'	9.9957339	16 8.9	16 12.1	59 9.9	59 21.7
8	226 22 34.8	0° 69'	9.9956274	16 15.0	16 17.5	59 32.3	59 41.4
9	227 22 54.9	0° 61'	9.9955224	16 19.5	16 20.9	59 48.6	59 53.7
10	228 23 16.3	0° 50'	9.9954192	16 21.6	16 21.6	59 56.3	59 56.2
11	229 23 39.2	0° 38'	9.9953178	16 20.7	16 19.1	59 53.2	59 47.1
12	230 24 3.6	0° 25'	9.9952183	16 16.6	16 13.3	59 38.0	59 26.0
13	231 24 29.6	N. 0° 10'	9.9951208	16 9.3	16 4.5	59 11.2	58 53.8
14	232 24 57.2	S. 0° 02'	9.9950255	15 59.2	15 53.4	58 34.3	58 13.0
15	233 25 26.5	0° 13'	9.9949325	15 47.3	15 40.9	57 50.5	57 27.1
16	234 25 57.5	0° 22'	9.9948415	15 34.4	15 28.0	57 3.5	56 40.0
17	235 26 30.2	0° 29'	9.9947524	15 21.8	15 15.8	56 17.2	55 55.4
18	236 27 4.6	0° 32'	9.9946653	15 10.3	15 5.2	55 35.1	55 16.5
19	237 27 40.7	0° 34'	9.9945801	15 0.7	14 56.8	54 59.9	54 45.6
20	238 28 18.5	0° 31'	9.9944966	14 53.5	14 51.0	54 33.7	54 24.4
21	239 28 58.0	0° 28'	9.9944150	14 49.2	14 48.0	54 17.6	54 13.5
22	240 29 39.1	0° 22'	9.9943351	14 47.6	14 47.9	54 12.1	54 13.2
23	241 30 21.8	0° 15'	9.9942566	14 49.0	14 50.6	54 16.9	54 23.0
24	242 31 6.1	S. 0° 05'	9.9941797	14 52.9	14 55.7	54 31.3	54 41.7
25	243 31 51.9	N. 0° 06'	9.9941041	14 59.0	15 2.8	54 53.9	55 7.7
26	244 32 39.2	0° 18'	9.9940301	15 7.0	15 11.4	55 23.0	55 39.3
27	245 33 28.0	0° 31'	9.9939575	15 16.1	15 20.9	55 56.3	56 13.8
28	246 34 18.2	0° 43'	9.9938860	15 25.7	15 30.5	56 31.5	56 49.1
29	247 35 9.6	0° 54'	9.9938158	15 35.2	15 39.7	57 6.2	57 22.7
30	248 36 2.3	0° 65'	9.9937469	15 44.0	15 47.9	57 38.4	57 53.0
31	249 36 56.0	N. 0° 72'	9.9936793	15 51.6	15 54.9	58 6.5	58 18.7

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian Passage.
		Noon.	Midnight.	Noon.	Midnight.	Noon.	
		[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	[°] ['] ["]	^d ^h ^m	
Tues.	1	240 56 7.4	247 22 49.8	N. 1 57 16.7	N. 2 29 42.2	1.9	1 15.4
Wed.	2	253 52 52.6	260 26 17.7	3 0 28.0	3 29 7.1	2.9	2 8.1
Thur.	3	267 3 6.8	273 43 21.1	3 55 13.6	4 18 22.1	3.9	3 2.2
Frid.	4	280 27 1.3	287 14 7.0	4 38 9.4	4 54 13.9	4.9	3 56.6
Sat.	5	294 4 37.4	300 58 30.0	5 6 16.5	5 14 1.0	5.9	4 50.8
Sun.	6	307 55 40.8	314 56 3.7	5 17 14.7	5 15 48.1	6.9	5 44.2
Mon.	7	321 59 29.6	329 5 46.5	5 9 36.3	4 58 39.1	7.9	6 36.9
Tues.	8	336 14 38.6	343 25 46.3	4 43 1.2	4 22 52.8	8.9	7 29.1
Wed.	9	350 38 45.6	357 53 8.5	3 58 29.8	3 30 13.7	9.9	8 21.3
Thur.	10	5 8 22.8	12 23 53.1	2 58 31.5	2 23 55.3	10.9	9 14.3
Frid.	11	19 39 0.7	26 53 5.1	1 47 1.6	N. 1 8 30.1	11.9	10 8.5
Sat.	12	34 5 25.1	41 15 19.9	N. 0 29 2.4	S. 0 10 39.2	12.9	11 4.0
Sun.	13	48 22 10.1	55 25 19.5	S. 0 49 52.7	1 27 59.1	13.9	12 0.4
Mon.	14	62 24 15.8	69 18 31.9	2 4 21.9	2 38 29.3	14.9	12 57.0
Tues.	15	76 7 46.4	82 51 44.4	3 9 54.1	3 38 14.1	15.9	13 52.6
Wed.	16	89 30 17.3	96 3 23.3	4 3 12.5	4 24 37.0	16.9	14 46.2
Thur.	17	102 31 7.1	108 53 39.3	4 42 19.9	4 56 16.9	17.9	15 37.1
Frid.	18	115 11 16.2	121 24 18.5	5 6 27.5	5 12 53.4	18.9	16 25.1
Sat.	19	127 33 11.8	133 38 24.9	5 15 38.4	5 14 47.9	19.9	17 10.6
Sun.	20	139 40 29.2	145 39 58.9	5 10 28.3	5 2 47.2	20.9	17 54.1
Mon.	21	151 37 29.2	157 33 36.9	4 51 52.3	4 37 52.5	21.9	18 36.4
Tues.	22	163 28 58.8	169 24 12.0	4 20 56.4	4 1 13.8	22.9	19 18.3
Wed.	23	175 19 52.6	181 16 36.2	3 38 54.9	3 14 10.9	23.9	20 0.5
Thur.	24	187 14 56.8	193 15 26.1	2 47 13.8	2 18 16.9	24.9	20 43.9
Frid.	25	199 18 33.9	205 24 46.5	1 47 35.3	1 15 25.5	25.9	21 29.3
Sat.	26	211 34 27.6	217 47 56.7	S. 0 42 6.0	S. 0 7 57.6	26.9	22 17.1
Sun.	27	224 5 29.5	230 27 16.9	N. 0 26 37.2	N. 1 1 13.4	27.9	23 7.5
Mon.	28	236 53 25.8	243 23 57.8	1 35 24.6	2 8 42.4	28.9	6
Tues.	29	249 58 49.7	256 37 54.0	2 40 37.8	3 10 41.0	0.2	0 0.5
Wed.	30	263 20 58.8	270 7 48.2	3 38 22.5	4 3 13.7	1.2	0 55.4
Thur.	31	276 58 3.3	283 51 22.6	N. 4 24 48.1	N. 4 42 41.4	2.2	1 51.1

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 1.				THURSDAY 3.			
0	h m s 15 56 51.75	S. 18 26 45.7	37.87	0	h m s 17 47 31.11	S. 19 30 8.7	13.95
1	15 59 6.60	18 30 32.9	35.90	1	17 49 51.89	19 28 45.0	15.09
2	16 1 21.64	18 34 14.4	35.92	2	17 52 12.71	19 27 14.5	16.23
3	16 3 36.86	18 37 49.9	34.94	3	17 54 33.58	19 25 37.1	17.37
4	16 5 52.26	18 41 19.5	33.95	4	17 56 54.49	19 23 52.9	18.52
5	16 8 7.84	18 44 43.2	32.95	5	17 59 15.44	19 22 1.8	19.67
6	16 10 23.61	18 48 1.0	31.95	6	18 1 36.42	19 20 3.8	20.80
7	16 12 39.55	18 51 12.7	30.94	7	18 3 57.43	19 17 59.0	21.94
8	16 14 55.66	18 54 18.3	29.93	8	18 6 18.47	19 15 47.4	23.08
9	16 17 11.94	18 57 17.9	28.91	9	18 8 39.54	19 13 28.9	24.22
10	16 19 28.40	19 0 11.3	27.88	10	18 11 0.62	19 11 3.6	25.36
11	16 21 45.02	19 2 58.6	26.85	11	18 13 21.73	19 8 31.4	26.50
12	16 24 1.81	19 5 39.7	25.82	12	18 15 42.85	19 5 52.4	27.64
13	16 26 18.76	19 8 14.6	24.78	13	18 18 3.98	19 3 6.6	28.77
14	16 28 35.86	19 10 43.3	23.73	14	18 20 25.13	19 0 13.9	29.91
15	16 30 53.12	19 13 5.6	22.68	15	18 22 46.28	18 57 14.5	31.04
16	16 33 10.53	19 15 21.7	21.63	16	18 25 7.43	18 54 8.3	32.17
17	16 35 28.10	19 17 31.5	20.57	17	18 27 28.58	18 50 55.3	33.30
18	16 37 45.81	19 19 34.9	19.50	18	18 29 49.73	18 47 35.5	34.42
19	16 40 3.67	19 21 31.9	18.43	19	18 32 10.88	18 44 9.0	35.55
20	16 42 21.67	19 23 22.5	17.36	20	18 34 32.01	18 40 35.7	36.67
21	16 44 39.81	19 25 6.6	16.28	21	18 36 53.14	18 36 55.7	37.78
22	16 46 58.09	19 26 44.3	15.20	22	18 39 14.25	18 33 9.0	38.90
23	16 49 16.50	S. 19 28 15.4	14.11	23	18 41 35.35	S. 18 29 15.6	40.02
WEDNESDAY 2.				FRIDAY 4.			
0	h m s 16 51 35.05	S. 19 29 40.1	13.02	0	h m s 18 43 56.43	S. 18 25 15.5	41.13
1	16 53 53.72	19 30 58.2	11.93	1	18 46 17.49	18 21 8.7	42.23
2	16 56 12.52	19 32 9.8	10.83	2	18 48 38.52	18 16 55.3	43.33
3	16 58 31.43	19 33 14.8	9.73	3	18 50 59.53	18 12 35.3	44.43
4	17 0 50.47	19 34 13.1	8.63	4	18 53 20.50	18 8 8.7	45.53
5	17 3 9.62	19 35 4.9	7.52	5	18 55 41.45	18 3 35.5	46.62
6	17 5 28.88	19 35 50.0	6.41	6	18 58 2.36	17 58 55.8	47.71
7	17 7 48.25	19 36 28.4	5.30	7	19 0 23.23	17 54 9.5	48.80
8	17 10 7.73	19 37 0.2	4.18	8	19 2 44.07	17 49 16.7	49.88
9	17 12 27.31	19 37 25.3	3.06	9	19 5 4.87	17 44 17.4	50.96
10	17 14 46.99	19 37 43.6	1.94	10	19 7 25.62	17 39 11.6	52.03
11	17 17 6.76	19 37 55.3	0.82	11	19 9 46.33	17 33 59.5	53.10
12	17 19 26.63	19 38 0.2	0.31	12	19 12 6.99	17 28 40.9	54.16
13	17 21 46.59	19 37 58.3	1.44	13	19 14 27.61	17 23 15.9	55.22
14	17 24 6.63	19 37 49.7	2.57	14	19 16 48.17	17 17 44.6	56.28
15	17 26 26.76	19 37 34.2	3.71	15	19 19 8.68	17 12 6.9	57.33
16	17 28 46.97	19 37 12.0	4.84	16	19 21 29.14	17 6 23.0	58.38
17	17 31 7.25	19 36 43.0	5.97	17	19 23 49.54	17 0 32.7	59.42
18	17 33 27.61	19 36 7.1	7.11	18	19 26 9.89	16 54 36.2	60.45
19	17 35 48.03	19 35 24.5	8.25	19	19 28 30.17	16 48 33.5	61.47
20	17 38 8.53	19 34 35.0	9.38	20	19 30 50.40	16 42 24.7	62.50
21	17 40 29.08	19 33 38.7	10.52	21	19 33 10.56	16 36 9.7	63.52
22	17 42 49.70	19 32 35.6	11.66	22	19 35 30.66	16 29 48.6	64.53
23	17 45 10.38	19 31 25.6	12.80	23	19 37 50.69	16 23 21.4	65.53
24	17 47 31.11	S. 19 30 8.7		24	19 40 10.66	S. 16 16 48.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 5.				MONDAY 7.			
0	h m s 19 40 10 ⁶⁶	S. 16 16 48 ²	66 ⁵³	0	h m s 21 30 41 ²⁹	S. 9 17 58 ⁰	105 ⁵⁸
1	19 42 30 ⁵⁶	16 10 9 ⁰	67 ⁵³	1	21 32 57 ⁷¹	9 7 24 ⁵	106 ¹⁸
2	19 44 50 ³⁹	16 3 23 ⁸	68 ⁵²	2	21 35 14 ⁰⁸	8 56 47 ⁴	106 ⁷⁶
3	19 47 10 ¹⁵	15 56 32 ⁷	69 ⁵⁰	3	21 37 30 ³⁹	8 46 6 ⁸	107 ³³
4	19 49 29 ⁸⁴	15 49 35 ⁸	70 ⁴⁷	4	21 39 46 ⁶⁵	8 35 22 ⁸	107 ⁸⁹
5	19 51 49 ⁴⁶	15 42 32 ⁹	71 ⁴⁴	5	21 42 2 ⁸⁷	8 24 35 ⁵	108 ⁴⁵
6	19 54 9 ⁰⁰	15 35 24 ³	72 ⁴⁰	6	21 44 19 ⁰⁴	8 13 44 ⁸	108 ⁹⁹
7	19 56 28 ⁴⁷	15 28 9 ⁹	73 ³⁶	7	21 46 35 ¹⁶	8 2 50 ⁹	109 ⁵²
8	19 58 47 ⁸⁷	15 20 49 ⁷	74 ³¹	8	21 48 51 ²³	7 51 53 ⁸	110 ⁰⁴
9	20 1 7 ¹⁹	15 13 23 ⁹	75 ²⁵	9	21 51 7 ²⁷	7 40 53 ⁵	110 ⁵⁵
10	20 3 26 ⁴⁴	15 5 52 ⁴	76 ¹⁸	10	21 53 23 ²⁷	7 29 50 ³	111 ⁰⁴
11	20 5 45 ⁶¹	14 58 15 ³	77 ¹¹	11	21 55 39 ²³	7 18 44 ⁰	111 ⁵³
12	20 8 4 ⁷⁰	14 50 32 ⁶	78 ⁰³	12	21 57 55 ¹⁵	7 7 34 ⁸	112 ⁰⁰
13	20 10 23 ⁷¹	14 42 44 ⁴	78 ⁹⁴	13	22 0 11 ⁰⁴	6 56 22 ⁸	112 ⁴⁷
14	20 12 42 ⁶⁵	14 34 50 ⁸	79 ⁸⁵	14	22 2 26 ⁸⁹	6 45 8 ⁰	112 ⁹³
15	20 15 1 ⁵¹	14 26 51 ⁷	80 ⁷⁵	15	22 4 42 ⁷²	6 33 50 ⁴	113 ³⁷
16	20 17 20 ²⁹	14 18 47 ²	81 ⁶⁴	16	22 6 58 ⁵²	6 22 30 ²	113 ⁸⁰
17	20 19 38 ⁹⁹	14 10 37 ⁴	82 ⁵²	17	22 9 14 ²⁹	6 11 7 ⁴	114 ²²
18	20 21 57 ⁶¹	14 2 22 ³	83 ³⁹	18	22 11 30 ⁰³	5 59 42 ¹	114 ⁶³
19	20 24 16 ¹⁵	13 54 1 ⁹	84 ²⁶	19	22 13 45 ⁷⁶	5 48 14 ³	115 ⁰³
20	20 26 34 ⁶²	13 45 36 ⁴	85 ¹²	20	22 16 1 ⁴⁷	5 36 44 ²	115 ⁴²
21	20 28 53 ⁰⁰	13 37 5 ⁷	85 ⁹⁷	21	22 18 17 ¹⁶	5 25 11 ⁷	115 ⁷⁹
22	20 31 11 ³¹	13 28 29 ⁸	86 ⁸¹	22	22 20 32 ⁸³	5 13 36 ⁹	116 ¹⁵
23	20 33 29 ⁵⁴	S. 13 19 49 ⁰	87 ⁶⁵	23	22 22 48 ⁴⁹	S. 5 2 0 ⁰	116 ⁵¹
SUNDAY 6.				TUESDAY 8.			
0	20 35 47 ⁶⁹	S. 13 11 3 ¹	88 ⁴⁷	0	22 25 4 ¹⁴	S. 4 50 20 ⁹	116 ⁸⁵
1	20 38 5 ⁷⁶	13 2 12 ³	89 ²⁹	1	22 27 19 ⁷⁸	4 38 39 ⁸	117 ¹⁸
2	20 40 23 ⁷⁶	12 53 16 ⁶	90 ¹⁰	2	22 29 35 ⁴¹	4 26 56 ⁷	117 ⁵⁰
3	20 42 41 ⁶⁸	12 44 16 ⁰	90 ⁹⁰	3	22 31 51 ⁰⁴	4 15 11 ⁷	117 ⁸⁰
4	20 44 59 ⁵¹	12 35 10 ⁶	91 ⁶⁹	4	22 34 6 ⁶⁷	4 3 24 ⁹	118 ¹⁰
5	20 47 17 ²⁸	12 26 0 ⁵	92 ⁴⁷	5	22 36 22 ³⁰	3 51 36 ⁴	118 ³⁸
6	20 49 34 ⁹⁷	12 16 45 ⁶	93 ²⁵	6	22 38 37 ⁹³	3 39 46 ¹	118 ⁶⁵
7	20 51 52 ⁵⁸	12 7 26 ²	94 ⁰¹	7	22 40 53 ⁵⁷	3 27 54 ²	118 ⁹¹
8	20 54 10 ¹²	11 58 2 ¹	94 ⁷⁷	8	22 43 9 ²¹	3 16 0 ⁷	119 ¹⁵
9	20 56 27 ⁵⁸	11 48 33 ⁵	95 ⁵²	9	22 45 24 ⁸⁷	3 4 5 ⁸	119 ³⁹
10	20 58 44 ⁹⁷	11 39 0 ⁴	96 ²⁵	10	22 47 40 ⁵³	2 52 9 ⁵	119 ⁶¹
11	21 1 2 ²⁹	11 29 22 ⁹	96 ⁹⁸	11	22 49 56 ²¹	2 40 11 ⁸	119 ⁸²
12	21 3 19 ⁵³	11 19 41 ⁰	97 ⁷⁰	12	22 52 11 ⁹¹	2 28 12 ⁹	120 ⁰²
13	21 5 36 ⁷⁰	11 9 54 ⁸	98 ⁴¹	13	22 54 27 ⁶³	2 16 12 ⁸	120 ²⁰
14	21 7 53 ⁸¹	11 0 4 ³	99 ¹¹	14	22 56 43 ³⁶	2 4 11 ⁶	120 ³⁷
15	21 10 10 ⁸⁵	10 50 9 ⁷	99 ⁸⁰	15	22 58 59 ¹³	1 52 9 ⁴	120 ⁵³
16	21 12 27 ⁸²	10 40 10 ⁹	100 ⁴⁸	16	23 1 14 ⁹²	1 40 6 ¹	120 ⁶⁸
17	21 14 44 ⁷²	10 30 8 ⁰	101 ¹⁶	17	23 3 30 ⁷³	1 28 2 ⁰	120 ⁸²
18	21 17 1 ⁵⁵	10 20 1 ⁰	101 ⁸²	18	23 5 46 ⁵⁸	1 15 57 ¹	120 ⁹⁴
19	21 19 18 ³³	10 9 50 ¹	102 ⁴⁷	19	23 8 2 ⁴⁶	1 3 51 ⁵	121 ⁰⁵
20	21 21 35 ⁰⁴	9 59 35 ³	103 ¹²	20	23 10 18 ³⁸	0 51 45 ²	121 ¹⁵
21	21 23 51 ⁶⁹	9 49 16 ⁶	103 ⁷⁵	21	23 12 34 ³⁴	0 39 38 ³	121 ²⁴
22	21 26 8 ²⁸	9 38 54 ¹	104 ³⁷	22	23 14 50 ³³	0 27 30 ⁸	121 ³¹
23	21 28 24 ⁸¹	9 28 27 ⁹	104 ⁹⁸	23	23 17 6 ³⁷	0 15 23 ⁰	121 ³⁷
24	21 30 41 ²⁹	S. 9 17 58 ⁰		24	23 19 22 ⁴⁵	S. 0 3 14 ⁸	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 9.				FRIDAY 11.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	23 19 22.45	S. 0 3 14.8	121.42	0	1 9 48.83	N. 9 20 33.4	108.10
1	23 21 38.58	N. 0 8 53.7	121.45	1	1 12 9.52	9 31 22.0	107.49
2	23 23 54.76	0 21 2.4	121.47	2	1 14 30.34	9 42 6.9	106.88
3	23 26 11.00	0 33 11.2	121.48	3	1 16 51.29	9 52 48.2	106.25
4	23 28 27.28	0 45 20.1	121.48	4	1 19 12.36	10 3 25.6	105.60
5	23 30 43.63	0 57 28.9	121.46	5	1 21 33.56	10 13 59.2	104.95
6	23 33 0.04	1 9 37.6	121.42	6	1 23 54.89	10 24 28.9	104.28
7	23 35 16.50	1 21 46.2	121.38	7	1 26 16.34	10 34 54.6	103.60
8	23 37 33.03	1 33 54.5	121.33	8	1 28 37.92	10 45 16.2	102.90
9	23 39 49.63	1 46 2.4	121.26	9	1 30 59.63	10 55 33.6	102.20
10	23 42 6.29	1 58 10.0	121.17	10	1 33 21.46	11 5 46.8	101.48
11	23 44 23.03	2 10 17.0	121.08	11	1 35 43.42	11 15 55.7	100.75
12	23 46 39.84	2 22 23.5	120.97	12	1 38 5.51	11 26 0.2	100.01
13	23 48 56.72	2 34 29.3	120.84	13	1 40 27.72	11 36 0.3	99.25
14	23 51 13.68	2 46 34.4	120.71	14	1 42 50.06	11 45 55.8	98.48
15	23 53 30.71	2 58 38.6	120.56	15	1 45 12.52	11 55 46.7	97.70
16	23 55 47.83	3 10 42.0	120.40	16	1 47 35.10	12 5 32.9	96.92
17	23 58 5.03	3 22 44.4	120.22	17	1 49 57.81	12 15 14.4	96.12
18	0 0 22.32	3 34 45.7	120.03	18	1 52 20.64	12 24 51.1	95.30
19	0 2 39.69	3 46 45.8	119.82	19	1 54 43.60	12 34 22.9	94.47
20	0 4 57.15	3 58 44.8	119.61	20	1 57 6.67	12 43 49.7	93.63
21	0 7 14.71	4 10 42.4	119.38	21	1 59 29.86	12 53 11.5	92.79
22	0 9 32.35	4 22 38.7	119.13	22	2 1 53.17	13 2 28.3	91.93
23	0 11 50.09	N. 4 34 33.5	118.88	23	2 4 16.60	N. 13 11 39.8	91.06
THURSDAY 10.				SATURDAY 12.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	0 14 7.93	N. 4 46 26.8	118.61	0	2 6 40.14	N. 13 20 46.2	90.17
1	0 16 25.87	4 58 18.5	118.32	1	2 9 3.80	13 29 47.2	89.28
2	0 18 43.90	5 10 8.4	118.03	2	2 11 27.57	13 38 42.9	88.37
3	0 21 2.04	5 21 56.6	117.72	3	2 13 51.46	13 47 33.1	87.46
4	0 23 20.28	5 33 42.9	117.39	4	2 16 15.45	13 56 17.9	86.53
5	0 25 38.63	5 45 27.2	117.06	5	2 18 39.55	14 4 57.1	85.60
6	0 27 57.08	5 57 9.6	116.71	6	2 21 3.76	14 13 30.7	84.65
7	0 30 15.64	6 8 49.8	116.34	7	2 23 28.07	14 21 58.6	83.70
8	0 32 34.31	6 20 27.8	115.96	8	2 25 52.49	14 30 20.8	82.73
9	0 34 53.09	6 32 3.6	115.57	9	2 28 17.00	14 38 37.2	81.76
10	0 37 11.98	6 43 37.1	115.17	10	2 30 41.62	14 46 47.8	80.78
11	0 39 30.98	6 55 8.1	114.75	11	2 33 6.33	14 54 52.5	79.78
12	0 41 50.10	7 6 36.5	114.32	12	2 35 31.13	15 2 51.2	78.78
13	0 44 9.33	7 18 2.4	113.87	13	2 37 56.03	15 10 43.9	77.77
14	0 46 28.68	7 29 25.6	113.41	14	2 40 21.01	15 18 30.5	76.75
15	0 48 48.15	7 40 46.1	112.94	15	2 42 46.08	15 26 11.0	75.72
16	0 51 7.74	7 52 3.7	112.45	16	2 45 11.24	15 33 45.3	74.68
17	0 53 27.45	8 3 18.5	111.96	17	2 47 36.48	15 41 13.4	73.63
18	0 55 47.28	8 14 30.2	111.45	18	2 50 1.79	15 48 35.2	72.57
19	0 58 7.23	8 25 38.9	110.92	19	2 52 27.19	15 55 50.6	71.51
20	1 0 27.30	8 36 44.4	110.38	20	2 54 52.65	16 2 59.7	70.44
21	1 2 47.50	8 47 46.7	109.83	21	2 57 18.19	16 10 2.3	69.36
22	1 5 7.82	8 58 45.7	109.27	22	2 59 43.79	16 16 58.5	68.27
23	1 7 28.26	9 9 41.3	108.69	23	3 2 9.47	16 23 48.1	67.18
24	1 9 48.83	N. 9 20 33.4		24	3 4 35.20	N. 16 30 31.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
SUNDAY 13.				TUESDAY 15.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	3 4 35.20	N.16 30 31.1	66.08	0	5 1 7.74	N.19 35 0.2	8.85
1	3 7 0.99	16 37 7.6	64.97	1	5 3 31.65	19 35 53.3	7.66
2	3 9 26.83	16 43 37.4	63.85	2	5 5 55.42	19 36 39.3	6.47
3	3 11 52.73	16 50 0.5	62.73	3	5 8 19.04	19 37 18.0	5.27
4	3 14 18.67	16 56 16.9	61.60	4	5 10 42.51	19 37 49.7	4.08
5	3 16 44.66	17 2 26.5	60.47	5	5 13 5.83	19 38 14.2	2.90
6	3 19 10.69	17 8 29.3	59.33	6	5 15 28.98	19 38 31.6	1.73
7	3 21 36.76	17 14 25.3	58.18	7	5 17 51.97	19 38 42.0	0.55
8	3 24 2.86	17 20 14.4	57.03	8	5 20 14.80	19 38 45.3	0.62
9	3 26 28.99	17 25 56.6	55.87	9	5 22 37.45	19 38 41.5	1.79
10	3 28 55.15	17 31 31.8	54.71	10	5 24 59.93	19 38 30.8	2.95
11	3 31 21.33	17 37 0.1	53.54	11	5 27 22.23	19 38 13.1	4.11
12	3 33 47.53	17 42 21.3	52.37	12	5 29 44.34	19 37 48.4	5.27
13	3 36 13.74	17 47 35.6	51.20	13	5 32 6.27	19 37 16.8	6.42
14	3 38 39.96	17 52 42.7	50.02	14	5 34 28.02	19 36 38.3	7.56
15	3 41 6.19	17 57 42.8	48.83	15	5 36 49.57	19 35 53.0	8.70
16	3 43 32.43	18 2 35.8	47.64	16	5 39 10.92	19 35 0.8	9.83
17	3 45 58.66	18 7 21.7	46.45	17	5 41 32.08	19 34 1.8	10.96
18	3 48 24.88	18 12 0.4	45.26	18	5 43 53.03	19 32 56.0	12.08
19	3 50 51.10	18 16 32.0	44.06	19	5 46 13.78	19 31 43.5	13.20
20	3 53 17.30	18 20 56.3	42.86	20	5 48 34.31	19 30 24.4	14.31
21	3 55 43.48	18 25 13.5	41.65	21	5 50 54.64	19 28 58.5	15.41
22	3 58 9.64	18 29 23.4	40.44	22	5 53 14.75	19 27 26.0	16.51
23	4 0 35.78	N.18 33 26.1	39.23	23	5 55 34.65	N.19 25 47.0	17.60
MONDAY 14.				WEDNESDAY 16.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	4 3 1.88	N.18 37 21.5	38.02	0	5 57 54.32	N.19 24 1.3	18.69
1	4 5 27.95	18 41 9.7	36.81	1	6 0 13.77	19 22 9.1	19.77
2	4 7 53.98	18 44 50.5	35.60	2	6 2 32.99	19 20 10.5	20.85
3	4 10 19.96	18 48 24.1	34.38	3	6 4 51.99	19 18 5.4	21.91
4	4 12 45.90	18 51 50.4	33.16	4	6 7 10.75	19 15 54.0	22.97
5	4 15 11.78	18 55 9.4	31.94	5	6 9 29.28	19 13 36.2	24.03
6	4 17 37.61	18 58 21.0	30.72	6	6 11 47.57	19 11 12.0	25.07
7	4 20 3.38	19 1 25.3	29.50	7	6 14 5.63	19 8 41.6	26.11
8	4 22 29.08	19 4 22.4	28.28	8	6 16 23.44	19 6 4.9	27.14
9	4 24 54.71	19 7 12.0	27.06	9	6 18 41.02	19 3 22.1	28.17
10	4 27 20.26	19 9 54.4	25.84	10	6 20 58.34	19 0 33.0	29.19
11	4 29 45.74	19 12 29.4	24.62	11	6 23 15.42	18 57 37.9	30.20
12	4 32 11.13	19 14 57.1	23.39	12	6 25 32.25	18 54 36.8	31.20
13	4 34 36.44	19 17 17.5	22.17	13	6 27 48.83	18 51 29.6	32.20
14	4 37 1.65	19 19 30.5	20.95	14	6 30 5.16	18 48 16.4	33.18
15	4 39 26.77	19 21 36.2	19.74	15	6 32 21.24	18 44 57.4	34.16
16	4 41 51.78	19 23 34.7	18.52	16	6 34 37.06	18 41 32.4	35.14
17	4 44 16.69	19 25 25.8	17.31	17	6 36 52.62	18 38 1.5	36.10
18	4 46 41.49	19 27 9.7	16.09	18	6 39 7.92	18 34 24.9	37.06
19	4 49 6.18	19 28 46.2	14.88	19	6 41 22.96	18 30 42.6	38.01
20	4 51 30.74	19 30 15.5	13.67	20	6 43 37.75	18 26 54.5	38.95
21	4 53 55.19	19 31 37.5	12.46	21	6 45 52.27	18 23 0.8	39.89
22	4 56 19.50	19 32 52.3	11.26	22	6 48 6.52	18 19 1.5	40.81
23	4 58 43.69	19 33 59.9	10.05	23	6 50 20.52	18 14 56.6	41.73
24	5 1 7.74	N.19 35 0.2		24	6 52 34.24	N.18 10 46.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 17.				SATURDAY 19.			
0	^h 6 ^m 52 ^s 34.24	N. 18° 10' 46".2	42".64	0	^h 8 ^m 34 ^s 20.27	N. 13° 18' 12".3	76".93
1	6 54 47.70	18 6 30.4	43.54	1	8 36 21.29	13 10 30.7	77.46
2	6 57 0.89	18 2 9.1	44.43	2	8 38 22.09	13 2 45.9	77.98
3	6 59 13.82	17 57 42.5	45.32	3	8 40 22.65	12 54 58.1	78.49
4	7 1 26.47	17 53 10.5	46.20	4	8 42 23.00	12 47 7.1	78.99
5	7 3 38.86	17 48 33.3	47.08	5	8 44 23.13	12 39 13.2	79.49
6	7 5 50.98	17 43 50.8	47.94	6	8 46 23.03	12 31 16.2	79.98
7	7 8 2.82	17 39 3.2	48.79	7	8 48 22.72	12 23 16.3	80.47
8	7 10 14.40	17 34 10.5	49.63	8	8 50 22.20	12 15 13.5	80.94
9	7 12 25.70	17 29 12.7	50.47	9	8 52 21.47	12 7 7.9	81.41
10	7 14 36.74	17 24 9.8	51.30	10	8 54 20.52	11 58 59.4	81.87
11	7 16 47.50	17 19 2.0	52.12	11	8 56 19.37	11 50 48.2	82.33
12	7 18 57.99	17 13 49.3	52.94	12	8 58 18.01	11 42 34.3	82.77
13	7 21 8.21	17 8 31.7	53.75	13	9 0 16.45	11 34 17.7	83.21
14	7 23 18.16	17 3 9.2	54.54	14	9 2 14.69	11 25 58.4	83.65
15	7 25 27.84	16 57 41.9	55.33	15	9 4 12.74	11 17 36.5	84.08
16	7 27 37.25	16 52 9.9	56.12	16	9 6 10.59	11 9 12.0	84.50
17	7 29 46.39	16 46 33.2	56.89	17	9 8 8.25	11 0 45.1	84.92
18	7 31 55.26	16 40 51.9	57.65	18	9 10 5.72	10 52 15.6	85.33
19	7 34 3.86	16 35 6.0	58.41	19	9 12 3.00	10 43 43.6	85.73
20	7 36 12.20	16 29 15.5	59.16	20	9 14 0.09	10 35 9.2	86.12
21	7 38 20.26	16 23 20.5	59.90	21	9 15 57.01	10 26 32.5	86.51
22	7 40 28.06	16 17 21.1	60.64	22	9 17 53.75	10 17 53.4	86.90
23	7 42 35.59	N. 16° 11' 17".3	61.36	23	9 19 50.31	N. 10° 9' 12".0	87.28
FRIDAY 18.				SUNDAY 20.			
0	7 44 42.85	N. 16° 5' 9".1	62.08	0	9 21 46.69	N. 10° 0' 28".4	87.65
1	7 46 49.85	15 58 56.6	62.78	1	9 23 42.91	9 51 42.5	88.01
2	7 48 56.58	15 52 39.9	63.48	2	9 25 38.96	9 42 54.5	88.37
3	7 51 3.05	15 46 19.0	64.18	3	9 27 34.84	9 34 4.3	88.72
4	7 53 9.25	15 39 53.9	64.87	4	9 29 30.56	9 25 11.9	89.07
5	7 55 15.20	15 33 24.7	65.54	5	9 31 26.13	9 16 17.5	89.41
6	7 57 20.88	15 26 51.5	66.21	6	9 33 21.53	9 7 21.1	89.74
7	7 59 26.31	15 20 14.2	66.87	7	9 35 16.78	8 58 22.6	90.07
8	8 1 31.47	15 13 33.0	67.52	8	9 37 11.88	8 49 22.2	90.39
9	8 3 36.38	15 6 47.9	68.17	9	9 39 6.84	8 40 19.8	90.71
10	8 5 41.04	14 59 58.9	68.80	10	9 41 1.64	8 31 15.6	91.02
11	8 7 45.44	14 53 6.1	69.43	11	9 42 56.31	8 22 9.5	91.32
12	8 9 49.59	14 46 9.6	70.05	12	9 44 50.83	8 13 1.5	91.62
13	8 11 53.49	14 39 9.3	70.67	13	9 46 45.22	8 3 51.8	91.91
14	8 13 57.14	14 32 5.3	71.28	14	9 48 39.48	7 54 40.4	92.19
15	8 16 0.54	14 24 57.6	71.87	15	9 50 33.60	7 45 27.2	92.47
16	8 18 3.69	14 17 46.4	72.46	16	9 52 27.60	7 36 12.4	92.75
17	8 20 6.60	14 10 31.6	73.05	17	9 54 21.48	7 26 55.9	93.02
18	8 22 9.27	14 3 13.2	73.63	18	9 56 15.23	7 17 37.8	93.28
19	8 24 11.69	13 55 51.5	74.20	19	9 58 8.86	7 8 18.1	93.54
20	8 26 13.88	13 48 26.3	74.76	20	10 0 2.38	6 58 56.8	93.79
21	8 28 15.83	13 40 57.7	75.32	21	10 1 55.79	6 49 34.1	94.04
22	8 30 17.55	13 33 25.8	75.86	22	10 3 49.08	6 40 9.8	94.28
23	8 32 19.03	13 25 50.7	76.40	23	10 5 42.27	6 30 44.1	94.52
24	8 34 20.27	N. 13° 18' 12".3		24	10 7 35.36	N. 6° 21' 17".0	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 21.				WEDNESDAY 23.			
0	h m s	N. ° ' "	"	0	h m s	S. ° ' "	"
0	10 7 35.36	6 21 17.0	94.75	0	11 37 4.25	1 29 33.3	99.49
1	10 9 28.35	6 11 48.5	94.97	1	11 38 56.16	1 39 30.3	99.46
2	10 11 21.24	6 2 18.7	95.20	2	11 40 48.13	1 49 27.0	99.42
3	10 13 14.04	5 52 47.5	95.41	3	11 42 40.16	1 59 23.6	99.38
4	10 15 6.74	5 43 15.0	95.62	4	11 44 32.25	2 9 19.8	99.33
5	10 16 59.36	5 33 41.3	95.82	5	11 46 24.41	2 19 15.8	99.28
6	10 18 51.90	5 24 6.4	96.02	6	11 48 16.63	2 29 11.5	99.22
7	10 20 44.35	5 14 30.3	96.21	7	11 50 8.93	2 39 6.8	99.15
8	10 22 36.73	5 4 53.1	96.40	8	11 52 1.30	2 49 1.7	99.08
9	10 24 29.03	4 55 14.7	96.58	9	11 53 53.74	2 58 56.2	99.00
10	10 26 21.26	4 45 35.2	96.75	10	11 55 46.27	3 8 50.2	98.92
11	10 28 13.42	4 35 54.7	96.92	11	11 57 38.88	3 18 43.7	98.83
12	10 30 5.51	4 26 13.2	97.08	12	11 59 31.58	3 28 36.6	98.73
13	10 31 57.54	4 16 30.7	97.24	13	12 1 24.37	3 38 29.0	98.63
14	10 33 49.52	4 6 47.2	97.40	14	12 3 17.25	3 48 20.8	98.53
15	10 35 41.44	3 57 2.9	97.55	15	12 5 10.23	3 58 12.0	98.42
16	10 37 33.30	3 47 17.6	97.69	16	12 7 3.31	4 8 2.5	98.30
17	10 39 25.12	3 37 31.4	97.83	17	12 8 56.48	4 17 52.3	98.17
18	10 41 16.89	3 27 44.5	97.96	18	12 10 49.77	4 27 41.3	98.04
19	10 43 8.62	3 17 56.7	98.09	19	12 12 43.16	4 37 29.5	97.91
20	10 45 0.30	3 8 8.2	98.21	20	12 14 36.66	4 47 17.0	97.76
21	10 46 51.95	2 58 18.9	98.33	21	12 16 30.28	4 57 3.5	97.61
22	10 48 43.57	2 48 29.0	98.44	22	12 18 24.01	5 6 49.2	97.46
23	10 50 35.16	N. 2 38 38.3	98.55	23	12 20 17.86	S. 5 16 34.0	97.30
TUESDAY 22.				THURSDAY 24.			
0	10 52 26.71	N. 2 28 47.1	98.65	0	12 22 11.83	S. 5 26 17.7	97.13
1	10 54 18.25	2 18 55.2	98.75	1	12 24 5.93	5 36 0.5	96.95
2	10 56 9.76	2 9 2.7	98.84	2	12 26 0.16	5 45 42.2	96.77
3	10 58 1.26	1 59 9.7	98.92	3	12 27 54.51	5 55 22.9	96.59
4	10 59 52.74	1 49 16.2	99.00	4	12 29 49.01	6 5 2.4	96.40
5	11 1 44.21	1 39 22.2	99.08	5	12 31 43.64	6 14 40.8	96.20
6	11 3 35.67	1 29 27.7	99.15	6	12 33 38.41	6 24 18.0	95.99
7	11 5 27.13	1 19 32.8	99.22	7	12 35 33.32	6 33 53.9	95.78
8	11 7 18.59	1 9 37.5	99.27	8	12 37 28.38	6 43 28.7	95.57
9	11 9 10.04	0 59 41.9	99.32	9	12 39 23.59	6 53 2.1	95.34
10	11 11 1.50	0 49 46.0	99.37	10	12 41 18.95	7 2 34.1	95.11
11	11 12 52.97	0 39 49.7	99.42	11	12 43 14.46	7 12 4.8	94.87
12	11 14 44.45	0 29 53.3	99.46	12	12 45 10.13	7 21 33.9	94.62
13	11 16 35.94	0 19 56.6	99.49	13	12 47 5.96	7 31 1.6	94.37
14	11 18 27.45	0 9 59.6	99.52	14	12 49 1.95	7 40 27.9	94.11
15	11 20 18.99	N. 0 0 2.5	99.54	15	12 50 58.11	7 49 52.6	93.85
16	11 22 10.55	S. 0 9 54.7	99.55	16	12 52 54.43	7 59 15.7	93.58
17	11 24 2.13	0 19 52.0	99.56	17	12 54 50.93	8 8 37.1	93.30
18	11 25 53.74	0 29 49.4	99.57	18	12 56 47.59	8 17 56.9	93.01
19	11 27 45.39	0 39 46.8	99.57	19	12 58 44.43	8 27 15.0	92.72
20	11 29 37.08	0 49 44.2	99.56	20	13 0 41.45	8 36 31.3	92.42
21	11 31 28.80	0 59 41.6	99.55	21	13 2 38.65	8 45 45.9	92.11
22	11 33 20.57	1 9 38.9	99.54	22	13 4 36.03	8 54 58.5	91.80
23	11 35 12.38	1 19 36.2	99.52	23	13 6 33.60	9 4 9.3	91.48
24	11 37 4.25	S. 1 29 33.3		24	13 8 31.36	S. 9 13 18.2	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
FRIDAY 25.				SUNDAY 27.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	13 8 31.36	S. 9 13 18.2	91.14	0	14 47 3.77	S. 15 39 16.0	65.97
1	13 10 29.31	9 22 25.1	90.80	1	14 49 12.96	15 45 51.8	65.24
2	13 12 27.44	9 31 29.9	90.46	2	14 51 22.40	15 52 23.3	64.50
3	13 14 25.77	9 40 32.7	90.11	3	14 53 32.10	15 58 50.3	63.75
4	13 16 24.30	9 49 33.4	89.75	4	14 55 42.06	16 5 12.8	62.99
5	13 18 23.03	9 58 31.9	89.39	5	14 57 52.28	16 11 30.8	62.23
6	13 20 21.96	10 7 28.2	89.01	6	15 0 2.75	16 17 44.1	61.45
7	13 22 21.10	10 16 22.3	88.63	7	15 2 13.48	16 23 52.8	60.67
8	13 24 20.44	10 25 14.0	88.24	8	15 4 24.47	16 29 56.8	59.88
9	13 26 19.99	10 34 3.5	87.84	9	15 6 35.72	16 35 56.1	59.07
10	13 28 19.75	10 42 50.6	87.44	10	15 8 47.22	16 41 50.5	58.26
11	13 30 19.73	10 51 35.2	87.03	11	15 10 58.98	16 47 40.1	57.44
12	13 32 19.92	11 0 17.4	86.61	12	15 13 10.99	16 53 24.7	56.61
13	13 34 20.33	11 8 57.1	86.18	13	15 15 23.26	16 59 4.4	55.77
14	13 36 20.95	11 17 34.1	85.75	14	15 17 35.78	17 4 39.0	54.93
15	13 38 21.80	11 26 8.6	85.30	15	15 19 48.55	17 10 8.6	54.08
16	13 40 22.87	11 34 40.4	84.85	16	15 22 1.58	17 15 33.0	53.21
17	13 42 24.17	11 43 9.5	84.39	17	15 24 14.85	17 20 52.3	52.34
18	13 44 25.69	11 51 35.9	83.92	18	15 26 28.38	17 26 6.4	51.46
19	13 46 27.44	11 59 59.4	83.45	19	15 28 42.15	17 31 15.2	50.58
20	13 48 29.42	12 8 20.1	82.96	20	15 30 56.16	17 36 18.6	49.68
21	13 50 31.63	12 16 37.9	82.47	21	15 33 10.43	17 41 16.7	48.78
22	13 52 34.07	12 24 52.7	81.97	22	15 35 24.94	17 46 9.4	47.87
23	13 54 36.75	S. 12 33 4.5	81.46	23	15 37 39.68	S. 17 50 56.6	46.95
SATURDAY 26.				MONDAY 28.			
0	13 56 39.66	S. 12 41 13.3	80.94	0	15 39 54.67	S. 17 55 38.2	46.02
1	13 58 42.81	12 49 19.0	80.42	1	15 42 9.90	18 0 14.3	45.08
2	14 0 46.20	12 57 21.5	79.89	2	15 44 25.37	18 4 44.8	44.14
3	14 2 49.84	13 5 20.8	79.35	3	15 46 41.07	18 9 9.7	43.19
4	14 4 53.71	13 13 16.9	78.79	4	15 48 57.00	18 13 28.8	42.23
5	14 6 57.83	13 21 9.6	78.23	5	15 51 13.17	18 17 42.2	41.26
6	14 9 2.20	13 28 59.1	77.67	6	15 53 29.57	18 21 49.7	40.29
7	14 11 6.81	13 36 45.1	77.09	7	15 55 46.19	18 25 51.5	39.31
8	14 13 11.66	13 44 27.6	76.51	8	15 58 3.04	18 29 47.3	38.33
9	14 15 16.77	13 52 6.6	75.92	9	16 0 20.12	18 33 37.2	37.32
10	14 17 22.12	13 59 42.1	75.31	10	16 2 37.41	18 37 21.1	36.31
11	14 19 27.73	14 7 14.0	74.70	11	16 4 54.92	18 40 58.9	35.30
12	14 21 33.59	14 14 42.2	74.08	12	16 7 12.65	18 44 30.7	34.28
13	14 23 39.70	14 22 6.7	73.45	13	16 9 30.59	18 47 56.4	33.25
14	14 25 46.06	14 29 27.4	72.82	14	16 11 48.74	18 51 15.9	32.22
15	14 27 52.68	14 36 44.3	72.17	15	16 14 7.10	18 54 29.2	31.18
16	14 29 59.55	14 43 57.4	71.52	16	16 16 25.67	18 57 36.3	30.13
17	14 32 6.68	14 51 6.5	70.86	17	16 18 44.43	19 0 37.1	29.08
18	14 34 14.07	14 58 11.6	70.18	18	16 21 3.40	19 3 31.6	28.02
19	14 36 21.71	15 5 12.7	69.50	19	16 23 22.56	19 6 19.7	26.96
20	14 38 29.60	15 12 9.8	68.82	20	16 25 41.92	19 9 1.5	25.89
21	14 40 37.76	15 19 2.7	68.12	21	16 28 1.46	19 11 36.8	24.81
22	14 42 46.17	15 25 51.4	67.41	22	16 30 21.19	19 14 5.7	23.73
23	14 44 54.84	15 32 35.8	66.70	23	16 32 41.11	19 16 28.0	22.64
24	14 47 3.77	S. 15 39 16.0		24	16 35 1.21	S. 19 18 43.8	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 29.				WEDNESDAY 30.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	16 35 1.21	S. 19 18 43.8	21.55	0	17 31 48.15	S. 19 39 8.5	6.04
1	16 37 21.48	19 20 53.1	20.45	1	17 34 11.54	19 38 32.3	7.23
2	16 39 41.93	19 22 55.7	19.34	2	17 36 35.00	19 37 48.9	8.41
3	16 42 2.55	19 24 51.8	18.23	3	17 38 58.54	19 36 58.4	9.60
4	16 44 23.33	19 26 41.1	17.11	4	17 41 22.15	19 36 0.8	10.79
5	16 46 44.28	19 28 23.8	15.99	5	17 43 45.83	19 34 56.1	11.98
6	16 49 5.39	19 29 59.8	14.87	6	17 46 9.56	19 33 44.2	13.17
7	16 51 26.65	19 31 29.0	13.74	7	17 48 33.35	19 32 25.2	14.36
8	16 53 48.07	19 32 51.4	12.60	8	17 50 57.20	19 30 59.0	15.55
9	16 56 9.63	19 34 7.0	11.46	9	17 53 21.09	19 29 25.7	16.75
10	16 58 31.33	19 35 15.8	10.32	10	17 55 45.02	19 27 45.2	17.94
11	17 0 53.18	19 36 17.7	9.18	11	17 58 9.00	19 25 57.6	19.13
12	17 3 15.16	19 37 12.8	8.03	12	18 0 33.01	19 24 2.8	20.33
13	17 5 37.28	19 38 0.9	6.87	13	18 2 57.05	19 22 0.8	21.52
14	17 7 59.53	19 38 42.1	5.71	14	18 5 21.12	19 19 51.7	22.71
15	17 10 21.90	19 39 16.3	4.54	15	18 7 45.21	19 17 35.5	23.90
16	17 12 44.39	19 39 43.6	3.38	16	18 10 9.32	19 15 12.1	25.08
17	17 15 7.00	19 40 3.9	2.21	17	18 12 33.44	19 12 41.6	26.27
18	17 17 29.72	19 40 17.1	1.04	18	18 14 57.58	19 10 4.0	27.46
19	17 19 52.54	19 40 23.3	0.14	19	18 17 21.72	19 7 19.2	28.64
20	17 22 15.48	19 40 22.5	1.31	20	18 19 45.86	19 4 27.4	29.82
21	17 24 38.51	19 40 14.6	2.49	21	18 22 10.00	19 1 28.5	31.00
22	17 27 1.63	19 39 59.7	3.67	22	18 24 34.13	18 58 22.5	32.18
23	17 29 24.85	19 39 37.7	4.85	23	18 26 58.26	18 55 9.4	33.35
24	17 31 48.15	S. 19 39 8.5		24	18 29 22.37	S. 18 51 49.4	

PHASES OF THE MOON.

	^d ^h ^m
☾ First Quarter - - - - -	6 11 52.8
○ Full Moon - - - - -	13 5 33.2
☾ Last Quarter - - - - -	20 19 16.7
● New Moon - - - - -	28 19 17.2

	^d ^h
☾ Perigee - - - - -	10 6
☾ Apogee - - - - -	22 1

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	SUN W.	21 40 15	3050	23 9 26	3042	24 38 47	3032	26 8 20	3022
	α Aquilæ E.	62 11 59	3228	60 46 23	3237	59 20 57	3247	57 55 43	3258
	Fomalhaut E.	91 39 40	3163	90 12 47	3155	88 45 44	3147	87 18 31	3139
	α Pegasi E.	108 45 3	2878	107 12 16	2866	105 39 14	2855	104 5 58	2845
2	SUN W.	33 38 56	2977	35 9 38	2969	36 40 30	2959	38 11 34	2950
	Fomalhaut E.	80 0 32	3114	78 32 40	3111	77 4 44	3110	75 36 47	3109
	α Pegasi E.	96 16 13	2794	94 41 37	2785	93 6 50	2776	91 31 51	2768
3	SUN W.	45 49 42	2906	47 21 53	2897	48 54 16	2888	50 26 50	2879
	Jupiter W.	24 47 9	2645	26 25 3	2635	28 3 10	2626	29 41 29	2618
	Venus W.	18 11 51	3063	19 40 46	3043	21 10 5	3026	22 39 46	3010
	Fomalhaut E.	68 17 4	3119	66 49 18	3125	65 21 38	3132	63 54 7	3141
	α Pegasi E.	83 34 16	2729	81 58 15	2722	80 22 5	2716	78 45 46	2710
4	SUN W.	58 12 33	2835	59 46 16	2826	61 20 10	2817	62 54 16	2808
	Jupiter W.	37 56 4	2574	39 35 35	2566	41 15 17	2557	42 55 11	2548
	Venus W.	30 12 36	2946	31 43 57	2934	33 15 33	2923	34 47 23	2912
	Fomalhaut E.	56 39 54	3213	55 14 0	3235	53 48 32	3259	52 23 32	3287
	α Pegasi E.	70 42 13	2683	69 5 11	2678	67 28 2	2675	65 50 49	2672
5	SUN W.	70 47 41	2763	72 22 57	2754	73 58 25	2746	75 34 4	2736
	Jupiter W.	51 17 41	2505	52 58 47	2497	54 40 4	2488	56 21 34	2480
	Venus W.	42 29 56	2860	44 3 6	2851	45 36 28	2840	47 10 4	2831
	Fomalhaut E.	45 28 20	3496	44 7 51	3556	42 48 29	3624	41 30 20	3702
	α Pegasi E.	57 43 57	2666	56 6 31	2667	54 29 7	2669	52 51 46	2672
	α Arietis E.	100 34 49	2497	98 53 32	2488	97 12 2	2479	95 30 20	2470
6	SUN W.	83 35 21	2692	85 12 12	2683	86 49 15	2675	88 26 29	2666
	Venus W.	55 1 10	2782	56 36 1	2774	58 11 3	2764	59 46 18	2755
	Fomalhaut E.	35 24 0	4295	34 17 3	4474	33 12 48	4682	32 11 33	4944
	α Pegasi E.	44 46 50	2714	43 10 28	2729	41 34 27	2747	39 58 50	2769
	α Arietis E.	86 58 49	2429	85 15 55	2421	83 32 51	2413	81 49 35	2406
7	SUN W.	96 35 36	2623	98 14 0	2615	99 52 35	2606	101 31 22	2599
	Venus W.	67 45 31	2711	69 21 56	2702	70 58 33	2694	72 35 21	2686
	α Pegasi E.	32 10 2	2963	30 39 3	3028	29 9 25	3107	27 41 23	3203
	α Arietis E.	73 10 40	2371	71 26 23	2365	69 41 58	2359	67 57 24	2353
	Aldebaran E.	106 17 17	2309	104 31 31	2302	102 45 35	2294	100 59 26	2287
	Mars E.	115 1 34	2249	113 14 19	2241	111 26 52	2232	109 39 12	2224
8	SUN W.	109 47 51	2561	111 27 40	2554	113 7 38	2548	114 47 45	2541
	Venus W.	80 42 0	2648	82 19 50	2641	83 57 50	2634	85 35 58	2627
	α Aquilæ W.	42 16 19	3209	43 42 17	3142	45 9 36	3081	46 38 9	3026
	α Arietis E.	59 12 41	2331	57 27 26	2328	55 42 7	2325	53 56 44	2324
	Aldebaran E.	92 6 4	2251	90 18 53	2245	88 31 32	2239	86 44 2	2233
	Mars E.	100 38 1	2186	98 49 13	2180	97 0 15	2173	95 11 7	2167
9	SUN W.	123 10 25	2513	124 51 20	2509	126 32 21	2505	128 13 28	2501
	Venus W.	93 48 44	2600	95 27 39	2596	97 6 40	2591	98 45 47	2588
	α Aquilæ W.	54 16 3	3280	55 50 5	2789	57 24 47	2762	59 0 5	2737
	Fomalhaut W.	31 4 5	4825	32 3 21	4554	33 6 26	4323	34 12 57	4124
	α Arietis E.	45 9 38	2328	43 24 19	2333	41 39 8	2339	39 54 5	2347
	Aldebaran E.	77 44 27	2206	75 56 9	2203	74 7 46	2198	72 19 16	2195

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1	SUN W.	27 38 5	3013	29 8 1	3005	30 38 8	2996	32 8 26	2986
	α Aquilæ E.	56 30 43	3272	55 5 59	3289	53 41 35	3307	52 17 31	3328
	Fomalhaut E.	85 51 9	3133	84 23 40	3127	82 56 3	3122	81 28 20	3118
	α Pegasi E.	102 32 28	2834	100 58 44	2823	99 24 46	2814	97 50 36	2804
2	SUN W.	39 42 49	2942	41 14 15	2932	42 45 53	2924	44 17 41	2914
	Fomalhaut E.	74 8 48	3108	72 40 48	3109	71 12 50	3112	69 44 55	3115
	α Pegasi E.	89 56 41	2760	88 21 21	2751	86 45 49	2744	85 10 7	2737
3	SUN W.	51 59 36	2870	53 32 33	2862	55 5 41	2852	56 39 1	2843
	Jupiter W.	31 20 0	2609	32 58 43	2600	34 37 38	2591	36 16 45	2582
	Venus W.	24 9 46	2996	25 40 3	2982	27 10 38	2969	28 41 29	2957
	Fomalhaut E.	62 26 47	3152	60 59 40	3163	59 32 46	3177	58 6 10	3194
	α Pegasi E.	77 9 19	2703	75 32 43	2698	73 56 0	2692	72 19 10	2687
4	SUN W.	64 28 33	2798	66 3 3	2790	67 37 44	2782	69 12 36	2772
	Jupiter W.	44 35 18	2540	46 15 36	2531	47 56 6	2522	49 36 48	2514
	Venus W.	36 19 27	2901	37 51 45	2891	39 24 15	2880	40 56 59	2870
	Fomalhaut E.	50 59 6	3319	49 35 17	3355	48 12 9	3396	46 49 48	3443
	α Pegasi E.	64 13 32	2669	62 36 11	2668	60 58 48	2666	59 21 22	2666
5	SUN W.	77 9 56	2728	78 45 59	2718	80 22 15	2710	81 58 42	2701
	Jupiter W.	58 3 15	2471	59 45 9	2463	61 27 14	2454	63 9 32	2446
	Venus W.	48 43 52	2821	50 17 53	2811	51 52 6	2801	53 26 32	2792
	Fomalhaut E.	40 13 35	3791	38 58 22	3892	37 44 54	4008	36 33 22	4141
	α Pegasi E.	51 14 29	2677	49 37 19	2684	48 0 18	2692	46 23 27	2702
	α Arietis E.	93 48 25	2462	92 6 19	2454	90 24 1	2445	88 41 30	2438
6	SUN W.	90 3 55	2657	91 41 33	2648	93 19 23	2640	94 57 24	2632
	Venus W.	61 21 45	2746	62 57 24	2738	64 33 14	2728	66 9 17	2719
	Fomalhaut E.	31 13 37	5209	30 19 22	5546	29 29 10	5947	28 43 24	6434
	α Pegasi E.	38 23 42	2795	36 49 8	2826	35 15 14	2864	33 42 9	2909
	α Arietis E.	80 6 9	2398	78 22 32	2391	76 38 45	2384	74 54 47	2377
7	SUN W.	103 10 19	2591	104 49 26	2583	106 28 44	2575	108 8 13	2569
	Venus W.	74 12 20	2678	75 49 29	2670	77 26 49	2662	79 4 20	2655
	α Pegasi E.	26 15 17	3320	24 51 29	3464	23 30 26	3644	22 12 40	3872
	α Arietis E.	66 12 41	2348	64 27 51	2343	62 42 54	2338	60 57 50	2335
	Aldebaran E.	99 13 7	2279	97 26 37	2272	95 39 56	2265	93 53 5	2258
	Mars E.	107 51 21	2216	106 3 18	2209	104 15 4	2201	102 26 38	2194
8	SUN W.	116 28 1	2535	118 8 25	2529	119 48 58	2524	121 29 38	2519
	Venus W.	87 14 16	2622	88 52 41	2615	90 31 15	2610	92 9 56	2605
	α Aquilæ W.	48 7 50	2976	49 38 33	2931	51 10 13	2890	52 42 44	2853
	α Arietis E.	52 11 19	2322	50 25 52	2323	48 40 26	2323	46 55 0	2325
	Aldebaran E.	84 56 23	2227	83 8 36	2221	81 20 40	2217	79 32 38	2211
	Mars E.	93 21 49	2161	91 32 22	2155	89 42 46	2149	87 53 1	2144
9	SUN W.	129 54 40	2497	131 35 57	2494	133 17 18	2492	134 58 43	2490
	Venus W.	100 24 59	2585	102 4 15	2582	103 43 35	2580	105 22 58	2577
	α Aquilæ W.	60 35 55	2714	62 12 16	2694	63 49 4	2676	65 26 16	2659
	Fomalhaut W.	35 22 36	3951	36 35 4	3799	37 50 7	3667	39 7 29	3552
	α Arietis E.	38 9 13	2357	36 24 36	2369	34 40 17	2384	32 56 20	2403
	Aldebaran E.	70 30 41	2192	68 42 2	2189	66 53 18	2187	65 4 31	2185

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9	Mars E.	86° 3' 9"	2139	84° 13' 9"	2134	82° 23' 2"	2130	80° 32' 49"	2126
10	Venus W.	107° 2' 24"	2576	108° 41' 52"	2575	110° 21' 21"	2575	112° 0' 51"	2575
	α Aquilæ W.	67° 3' 51"	2645	68° 41' 45"	2632	70° 19' 56"	2621	71° 58' 23"	2612
	Fomalhaut W.	40° 26' 55"	3450	41° 48' 15"	3360	43° 11' 17"	3281	44° 35' 50"	3211
	Aldebaran E.	63° 15° 40"	2184	61° 26' 48"	2182	59° 37' 54"	2181	57° 48' 58"	2182
	Mars E.	71° 20' 23"	2113	69° 29' 43"	2111	67° 39' 1"	2110	65° 48' 17"	2109
	Pollux E.	105° 43' 19"	2274	103° 56' 41"	2271	102° 9' 58"	2269	100° 23' 13"	2268
11	α Aquilæ W.	80° 13' 12"	2585	81° 52' 28"	2583	83° 31' 46"	2583	85° 11' 4"	2585
	Fomalhaut W.	51° 56' 44"	2963	53° 27' 43"	2929	54° 59' 25"	2899	56° 31' 45"	2873
	α Pegasi W.	32° 36' 26"	2759	34° 11' 48"	2710	35° 48' 15"	2668	37° 25' 38"	2633
	Aldebaran E.	48° 44' 34"	2188	46° 55' 49"	2192	45° 7' 9"	2195	43° 18' 33"	2200
	Mars E.	56° 34' 42"	2115	54° 44' 5"	2118	52° 53' 33"	2121	51° 3' 5"	2125
	Pollux E.	91° 29' 11"	2269	89° 42' 26"	2272	87° 55' 45"	2275	86° 9' 8"	2279
12	α Aquilæ W.	93° 26' 32"	2609	95° 5' 15"	2618	96° 43' 45"	2628	98° 22' 2"	2639
	Fomalhaut W.	64° 20' 28"	2788	65° 55' 12"	2778	67° 30' 9"	2770	69° 5' 16"	2765
	α Pegasi W.	45° 42' 16"	2526	47° 22' 53"	2515	49° 3' 46"	2506	50° 44' 51"	2499
	Aldebaran E.	34° 17' 31"	2230	32° 29' 48"	2238	30° 42' 17"	2248	28° 55' 1"	2258
	Mars E.	41° 52' 37"	2154	40° 3' 0"	2162	38° 13' 35"	2171	36° 24' 24"	2181
	Pollux E.	77° 17' 48"	2307	75° 31' 59"	2316	73° 46' 23"	2324	72° 0' 59"	2333
13	Fomalhaut W.	77° 1' 54"	2763	78° 37' 11"	2767	80° 12' 22"	2772	81° 47' 26"	2779
	α Pegasi W.	59° 11' 45"	2492	60° 53' 9"	2495	62° 34' 29"	2499	64° 15' 44"	2504
	Mars E.	27° 22' 37"	2247	25° 35' 19"	2265	23° 48' 27"	2285	22° 2' 5"	2309
	Pollux E.	63° 17' 46"	2392	61° 34' 0"	2407	59° 50' 35"	2422	58° 7' 31"	2438
	Regulus E.	99° 35' 21"	2296	97° 49' 16"	2306	96° 3' 25"	2317	94° 17' 50"	2328
14	Fomalhaut W.	89° 40' 1"	2832	91° 13' 47"	2845	92° 47' 16"	2860	94° 20' 26"	2877
	α Pegasi W.	72° 39' 41"	2544	74° 19' 53"	2555	75° 59' 50"	2566	77° 39' 32"	2577
	α Arietis W.	29° 6' 45"	2626	30° 45' 5"	2615	32° 23' 40"	2607	34° 2' 25"	2603
	Pollux E.	49° 38' 19"	2533	47° 57' 51"	2555	46° 17' 54"	2579	44° 38' 30"	2605
	Regulus E.	85° 34' 7"	2389	83° 50' 17"	2403	82° 6' 46"	2417	80° 23' 35"	2430
15	α Pegasi W.	85° 53' 45"	2645	87° 31' 39"	2660	89° 9' 13"	2675	90° 46' 27"	2691
	α Arietis W.	42° 16' 26"	2617	43° 54' 58"	2624	45° 33' 20"	2633	47° 11' 30"	2643
	Pollux E.	36° 31' 1"	2762	34° 55' 43"	2802	33° 21' 18"	2846	31° 47' 50"	2895
	Regulus E.	71° 52' 48"	2506	70° 11' 42"	2522	68° 30' 59"	2538	66° 50' 38"	2554
16	α Arietis W.	55° 18' 51"	2699	56° 55' 32"	2712	58° 31' 56"	2725	60° 8' 3"	2738
	Aldebaran W.	21° 34' 0"	2649	23° 11' 48"	2660	24° 49' 21"	2672	26° 26' 38"	2685
	Mars W.	15° 37' 35"	2655	17° 15' 15"	2644	18° 53' 10"	2639	20° 31' 11"	2639
	Regulus E.	58° 34' 33"	2637	56° 56' 29"	2654	55° 18' 48"	2672	53° 41' 30"	2689
	Spica E.	112° 13' 7"	2610	110° 34' 26"	2626	108° 56' 6"	2642	107° 18' 8"	2658
	Saturn E.	115° 34' 14"	2657	113° 56' 36"	2673	112° 19' 20"	2689	110° 42' 25"	2705
17	α Arietis W.	68° 4' 9"	2807	69° 38' 28"	2821	71° 12' 29"	2835	72° 46' 11"	2849
	Aldebaran W.	34° 28' 38"	2753	36° 4' 7"	2768	37° 39' 17"	2782	39° 14' 9"	2795
	Mars W.	28° 40' 8"	2673	30° 17' 24"	2684	31° 54' 26"	2694	33° 31' 14"	2705
	Regulus E.	45° 40' 46"	2776	44° 5' 47"	2794	42° 31' 11"	2811	40° 56' 58"	2829
	Spica E.	99° 13' 38"	2737	97° 37' 47"	2752	96° 2' 16"	2767	94° 27' 5"	2782
	Saturn E.	102° 43' 5"	2783	101° 8' 15"	2798	99° 33' 44"	2814	97° 59' 34"	2828
	SUN E.	132° 44' 38"	3094	131° 16' 21"	3110	129° 48' 24"	3128	128° 20' 48"	3144

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9	Mars E.	78 42 29 2122		76 52 4 2119		75 1 34 2117		73 11 1 2114	
10	Venus W.	113 40 21 2576		115 19 49 2577		116 59 16 2578		118 38 41 2581	
	α Aquilæ W.	73 37 2 2603		75 15 53 2596		76 54 53 2591		78 34 0 2588	
	Fomalhaut W.	46 1 46 3148		47 28 57 3093		48 57 15 3045		50 26 32 3001	
	Aldebaran E.	56 0 3 2182		54 11 8 2182		52 22 14 2184		50 33 23 2186	
	Mars E.	63 57 32 2109		62 6 47 2110		60 16 3 2111		58 25 21 2113	
	Pollux E.	98 36 26 2266		96 49 36 2266		95 2 47 2266		93 15 58 2268	
11	α Aquilæ W.	86 50 20 2588		88 29 32 2591		90 8 40 2596		91 47 40 2602	
	Fomalhaut W.	58 4 38 2850		59 38 1 2831		61 11 49 2814		62 45 59 2799	
	α Pegasi W.	39 3 49 2603		40 42 40 2578		42 22 5 2557		44 1 58 2540	
	Aldebaran E.	41 30 5 2204		39 41 43 2209		37 53 29 2216		36 5 25 2223	
	Mars E.	49 12 44 2129		47 22 29 2135		45 32 23 2140		43 42 25 2147	
	Pollux E.	84 22 37 2283		82 36 12 2288		80 49 55 2294		79 3 47 2300	
12	α Aquilæ W.	100 0 4 2652		101 37 49 2666		103 15 15 2681		104 52 21 2697	
	Fomalhaut W.	70 40 30 2761		72 15 49 2759		73 51 11 2759		75 26 33 2760	
	α Pegasi W.	52 26 6 2495		54 7 26 2492		55 48 51 2490		57 30 18 2490	
	Aldebaran E.	27 7 59 2269		25 21 14 2282		23 34 47 2296		21 48 41 2311	
	Mars E.	34 35 27 2191		32 46 46 2203		30 58 23 2216		29 10 19 2231	
	Pollux E.	70 15 48 2344		68 30 53 2355		66 46 13 2367		65 1 51 2379	
13	Fomalhaut W.	83 22 22 2788		84 57 6 2797		86 31 38 2807		88 5 57 2819	
	α Pegasi W.	65 56 51 2510		67 37 50 2517		69 18 39 2526		70 59 16 2535	
	Mars E.	20 16 18 2337		18 31 12 2370		16 46 54 2411		15 3 36 2466	
	Pollux E.	56 24 50 2455		54 42 33 2473		53 0 41 2492		51 19 16 2512	
	Regulus E.	92 32 31 2339		90 47 29 2351		89 2 44 2363		87 18 16 2376	
14	Fomalhaut W.	95 53 14 2894		97 25 41 2912		98 57 45 2931		100 29 25 2951	
	α Pegasi W.	79 18 58 2590		80 58 7 2603		82 36 58 2616		84 15 31 2630	
	α Arietis W.	35 41 16 2602		37 20 8 2603		38 58 59 2606		40 37 46 2611	
	Pollux E.	42 59 42 2632		41 21 30 2661		39 43 57 2692		38 7 6 2726	
	Regulus E.	78 40 43 2445		76 58 13 2460		75 16 3 2475		73 34 14 2491	
15	α Pegasi W.	92 23 19 2707		93 59 50 2724		95 35 58 2740		97 11 45 2758	
	α Arietis W.	48 49 27 2652		50 27 11 2663		52 4 40 2675		53 41 54 2687	
	Pollux E.	30 15 24 2949		28 44 7 3010		27 14 6 3079		25 45 31 3159	
	Regulus E.	65 10 40 2570		63 31 4 2587		61 51 51 2604		60 13 1 2620	
16	α Arietis W.	61 43 52 2752		63 19 23 2765		64 54 37 2779		66 29 32 2793	
	Aldebaran W.	28 3 38 2699		29 40 20 2712		31 16 44 2726		32 52 50 2739	
	Mars W.	22 9 13 2643		23 47 10 2649		25 24 59 2655		27 2 39 2663	
	Regulus E.	52 4 35 2706		50 28 3 2723		48 51 54 2741		47 16 9 2758	
	Spica E.	105 40 32 2674		104 3 17 2689		102 26 23 2705		100 49 50 2721	
	Saturn E.	109 5 51 2720		107 29 38 2736		105 53 46 2752		104 18 15 2768	
17	α Arietis W.	74 19 36 2863		75 52 43 2876		77 25 33 2889		78 58 6 2903	
	Aldebaran W.	40 48 43 2810		42 22 58 2823		43 56 56 2837		45 30 36 2850	
	Mars W.	35 7 8 2716		36 44 7 2727		38 20 11 2738		39 56 0 2750	
	Regulus E.	39 23 8 2848		37 49 42 2866		36 16 39 2884		34 43 59 2903	
	Spica E.	92 52 13 2797		91 17 41 2811		89 43 28 2825		88 9 33 2839	
	Saturn E.	96 25 43 2843		94 52 11 2858		93 18 58 2873		91 46 4 2886	
	Sun E.	126 53 31 3159		125 26 33 3175		123 59 54 3191		122 33 34 3206	

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18	α Arietis W.	80 30 21 2916	82 2 20 2929	83 34 2 2941	85 5 29 2954				
	Aldebaran W.	47 3 59 2863	48 37 5 2876	50 9 54 2889	51 42 27 2901				
	Mars W.	41 31 34 2761	43 6 53 2772	44 41 57 2783	46 16 47 2795				
	Regulus E.	33 11 44 2922	31 39 53 2942	30 8 28 2962	28 37 27 2984				
	Spica E.	86 35 56 2853	85 2 37 2867	83 29 36 2880	81 56 51 2892				
	Saturn E.	90 13 27 2900	88 41 8 2913	87 9 6 2927	85 37 21 2939				
	SUN E.	121 7 32 3220	119 41 47 3236	118 16 20 3250	116 51 10 3264				
19	α Arietis W.	92 38 51 3012	94 8 49 3023	95 38 33 3034	97 8 4 3044				
	Aldebaran W.	59 21 24 2958	60 52 29 2969	62 23 21 2978	63 54 1 2988				
	Mars W.	54 7 27 2845	55 40 56 2854	57 14 14 2864	58 47 19 2872				
	Pollux W.	20 5 37 3813	21 20 26 3714	22 36 58 3634	23 54 55 3569				
	Spica E.	74 17 2 2951	72 45 48 2961	71 14 47 2971	69 43 58 2981				
	Saturn E.	78 2 31 2999	76 32 17 3009	75 2 15 3020	73 32 27 3030				
	SUN E.	109 49 14 3328	108 25 35 3339	107 2 9 3350	105 38 55 3361				
20	Aldebaran W.	71 24 31 3029	72 54 8 3036	74 23 36 3042	75 52 57 3048				
	Mars W.	66 30 13 2909	68 2 20 2915	69 34 20 2921	71 6 12 2926				
	Pollux W.	30 38 50 3380	32 1 29 3358	33 24 34 3340	34 47 59 3324				
	Spica E.	62 12 47 3023	60 43 3 303	59 13 27 3037	57 44 0 3042				
	Saturn E.	66 6 17 3073	64 37 34 3079	63 8 59 3086	61 40 33 3092				
	SUN E.	98 45 39 3407	97 23 30 3415	96 1 30 3422	94 39 38 3428				
21	Aldebaran W.	83 18 1 3070	84 46 47 3074	86 15 29 3077	87 44 7 3078				
	Mars W.	78 44 4 2946	80 15 25 2948	81 46 43 2951	83 17 57 2952				
	Pollux W.	41 49 0 3269	43 13 48 3261	44 38 45 3254	46 3 50 3247				
	Spica E.	50 18 21 3065	48 49 28 3069	47 20 40 3071	45 51 55 3073				
	Saturn E.	54 20 5 3117	52 52 16 3121	51 24 32 3124	49 56 51 3127				
	SUN E.	87 51 57 3453	86 30 40 3456	85 9 27 3460	83 48 18 3462				
22	Aldebaran W.	95 6 56 3080	96 35 30 3080	98 4 4 3079	99 32 39 3077				
	Mars W.	90 53 51 2954	92 25 2 2953	93 56 14 2951	95 27 28 2950				
	Pollux W.	53 11 13 3216	54 37 3 3209	56 3 1 3204	57 29 5 3198				
	Spica E.	38 28 33 3075	36 59 53 3075	35 31 13 3074	34 2 31 3071				
	Saturn E.	42 39 4 3133	41 11 34 3133	39 44 5 3133	38 16 35 3132				
	SUN E.	77 2 57 3465	75 41 54 3464	74 20 50 3463	72 59 45 3461				
23	Mars W.	103 4 26 2933	104 36 3 2929	106 7 45 2924	107 39 34 2919				
	Pollux W.	64 41 20 3165	66 8 11 3158	67 35 10 3151	69 2 18 3143				
	Regulus W.	27 40 1 3143	29 7 19 3131	30 34 51 3119	32 2 38 3107				
	Saturn E.	30 58 49 3126	29 31 11 3124	28 3 31 3123	26 35 49 3121				
	SUN E.	66 13 34 3444	64 52 7 3439	63 30 35 3434	62 8 57 3428				
24	Pollux W.	76 20 21 3102	77 48 28 3094	79 16 45 3084	80 45 14 3075				
	Regulus W.	39 24 53 3054	40 53 59 3043	42 23 18 3034	43 52 49 3023				
	SUN E.	55 18 58 3394	53 56 34 3386	52 34 1 3376	51 11 17 3368				
25	Pollux W.	88 10 29 3026	89 40 9 3017	91 10 0 3006	92 40 5 2996				
	Regulus W.	51 23 49 2968	52 54 42 2956	54 25 50 2945	55 57 12 2934				
	SUN E.	44 15 2 3319	42 51 13 3308	41 27 11 3298	40 2 57 3288				
26	Pollux W.	100 13 42 2944	101 45 5 2934	103 16 41 2924	104 48 30 2913				
	Regulus W.	63 37 44 2874	65 10 36 2862	66 43 43 2850	68 17 6 2837				
	SUN E.	32 58 35 3231	31 33 3 3220	30 7 18 3209	28 41 20 3198				

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18	α Arietis W.	86 36 39	2966	88 7 34	2978	89 38 14	2990	91 8 40	3001
	Aldebaran W.	53 14 44	2913	54 46 46	2925	56 18 33	2937	57 50 5	2947
	Mars W.	47 51 22	2805	49 25 43	2815	50 59 51	2826	52 33 45	2835
	Regulus E.	27 6 54	3006	25 36 49	3030	24 7 14	3056	22 38 11	3085
	Spica E.	80 24 22	2905	78 52 10	2916	77 20 12	2929	75 48 30	2940
	Saturn E.	84 5 52	2953	82 34 39	2965	81 3 42	2976	79 32 59	2988
	SUN E.	115 26 16	3277	114 1 38	3291	112 37 16	3303	111 13 8	3315
19	α Arietis W.	98 37 22	3053	100 6 29	3063	101 35 24	3072	103 4 8	3081
	Aldebaran W.	65 24 28	2997	66 54 45	3006	68 24 50	3014	69 54 46	3022
	Mars W.	60 20 14	2880	61 52 58	2888	63 25 33	2896	64 57 57	2902
	Pollux W.	25 14 3	3516	26 34 9	3472	27 55 4	3436	29 16 40	3406
	Spica E.	68 13 22	2990	66 42 57	2999	65 12 44	3007	63 42 40	3016
	Saturn E.	72 2 51	3039	70 33 26	3048	69 4 13	3056	67 35 10	3065
	SUN E.	104 15 54	3371	102 53 4	3381	101 30 26	3390	100 7 58	3398
20	Aldebaran W.	77 22 10	3054	78 51 16	3058	80 20 17	3063	81 49 11	3067
	Mars W.	72 37 58	2931	74 9 38	2936	75 41 11	2939	77 12 40	2943
	Pollux W.	36 11 43	3310	37 35 43	3298	38 59 57	3288	40 24 23	3278
	Spica E.	56 14 39	3048	54 45 26	3053	53 16 19	3057	51 47 17	3062
	Saturn E.	60 12 14	3099	58 44 3	3104	57 15 58	3109	55 47 59	3113
	SUN E.	93 17 53	3434	91 56 15	3440	90 34 44	3445	89 13 18	3449
21	Aldebaran W.	89 12 44	3080	90 41 18	3080	92 9 52	3082	93 38 24	3082
	Mars W.	84 49 10	2954	86 20 21	2954	87 51 31	2954	89 22 41	2954
	Pollux W.	47 29 4	3241	48 54 25	3234	50 19 54	3228	51 45 30	3222
	Spica E.	44 23 12	3074	42 54 31	3075	41 25 51	3076	39 57 12	3076
	Saturn E.	48 29 14	3128	47 1 39	3129	45 34 5	3132	44 6 34	3133
	SUN E.	82 27 11	3464	81 6 6	3465	79 45 3	3465	78 24 0	3465
22	Aldebaran W.	101 1 17	3074	102 29 58	3072	103 58 42	3069	105 27 30	3065
	Mars W.	96 58 44	2947	98 30 4	2944	100 1 27	2941	101 32 54	2937
	Pollux W.	58 55 17	3192	60 21 36	3185	61 48 3	3179	63 14 37	3172
	Spica E.	32 33 46	3069	31 4 59	3066	29 36 8	3064	28 7 14	3060
	Saturn E.	36 49 4	3132	35 21 33	3130	33 54 0	3129	32 26 26	3127
	SUN E.	71 38 37	3459	70 17 27	3456	68 56 13	3453	67 34 56	3448
23	Mars W.	109 11 29	2913	110 43 32	2908	112 15 41	2901	113 47 59	2894
	Pollux W.	70 29 36	3135	71 57 3	3128	73 24 39	3119	74 52 25	3111
	Regulus W.	33 30 39	3096	34 58 53	3086	36 27 20	3075	37 56 0	3064
	Saturn E.	25 8 5	3120	23 40 20	3120	22 12 35	3121	20 44 51	3123
	SUN E.	60 47 12	3422	59 25 20	3415	58 3 21	3408	56 41 14	3401
24	Pollux W.	82 13 54	3066	83 42 45	3057	85 11 47	3047	86 41 2	3037
	Regulus W.	45 22 34	3011	46 52 33	3001	48 22 44	2989	49 53 10	2979
	SUN E.	49 48 24	3359	48 25 20	3349	47 2 5	3339	45 38 39	3330
25	Pollux W.	94 10 22	2985	95 40 53	2975	97 11 36	2965	98 42 33	2955
	Regulus W.	57 28 48	2922	59 0 39	2909	60 32 46	2898	62 5 7	2886
	SUN E.	38 38 31	3277	37 13 52	3265	35 48 59	3254	34 23 54	3242
26	Pollux W.	106 20 33	2903	107 52 48	2893	109 25 16	2883	110 57 57	2873
	Regulus W.	69 50 46	2826	71 24 40	2813	72 58 51	2801	74 33 18	2789
	SUN E.	27 15 8	3187	25 48 43	3176	24 22 5	3167	22 55 16	3157

Day of the Month.	AIRY's Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1°59548	1°58094	0°34896	1°50603	22°689
2	1°59313	1°58404	0°34942	1°50636	22°527
3	1°59072	1°58706	0°34988	1°50669	22°375
4	1°58824	1°59003	0°35035	1°50702	22°233
5	1°58570	1°59294	0°35083	1°50736	22°101
6	1°58310	1°59576	0°35131	1°50769	21°978
7	1°58044	1°59853	0°35179	1°50802	21°865
8	1°57771	1°60124	0°35228	1°50836	21°761
9	1°57492	1°60387	0°35277	1°50869	21°668
10	1°57207	1°60644	0°35326	1°50902	21°584
11	1°56914	1°60894	0°35376	1°50936	21°509
12	1°56616	1°61139	0°35427	1°50969	21°443
13	1°56311	1°61377	0°35478	1°51002	21°386
14	1°55999	1°61609	0°35530	1°51035	21°339
15	1°55681	1°61834	0°35583	1°51067	21°302
16	1°55356	1°62052	0°35637	1°51099	21°275
17	1°55024	1°62263	0°35691	1°51131	21°257
18	1°54685	1°62468	0°35745	1°51162	21°250
19	1°54340	1°62667	0°35799	1°51192	21°253
20	1°53988	1°62861	0°35854	1°51222	21°267
21	1°53630	1°63047	0°35909	1°51252	21°289
22	1°53265	1°63227	0°35965	1°51282	21°321
23	1°52892	1°63402	0°36021	1°51311	21°364
24	1°52512	1°63570	0°36078	1°51339	21°416
25	1°52125	1°63732	0°36135	1°51367	21°478
26	1°51732	1°63887	0°36193	1°51394	21°551
27	1°51331	1°64036	0°36251	1°51421	21°634
28	1°50923	1°64179	0°36309	1°51447	21°726
29	1°50508	1°64316	0°36368	1°51472	21°828
30	1°50087	1°64446	0°36427	1°51497	21°939
31	1°49659	1°64570	0°36486	1°51521	22°060

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .238545.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Days.		
1	+1°1583	+1°1173	+0°0143	+0°8491	^h ^m ^s 9 14 22°95	224	305	.8351
2	1°1518	1°1263	0°0152	0°8506	9 10 27°04	225	306	.8378
3	1°1452	1°1349	0°0162	0°8521	9 6 31°13	226	307	.8405
4	+1°1382	+1°1433	+0°0173	+0°8536	9 2 35°22	227	308	.8433
5	1°1310	1°1513	0°0183	0°8551	8 58 39°32	228	309	.8460
6	1°1236	1°1591	0°0193	0°8566	8 54 43°41	229	310	.8488
7	+1°1159	+1°1666	+0°0203	+0°8581	8 50 47°50	230	311	.8515
8	1°1079	1°1739	0°0214	0°8596	8 46 51°59	231	312	.8542
9	1°0996	1°1809	0°0224	0°8611	8 42 55°68	232	313	.8570
10	+1°0910	+1°1877	+0°0235	+0°8626	8 38 59°77	233	314	.8597
11	1°0821	1°1942	0°0246	0°8640	8 35 3°86	234	315	.8624
12	1°0728	1°2005	0°0257	0°8655	8 31 7°95	235	316	.8652
13	+1°0633	+1°2066	+0°0268	+0°8669	8 27 12°05	236	317	.8679
14	1°0533	1°2125	0°0279	0°8683	8 23 16°14	237	318	.8707
15	1°0430	1°2182	0°0290	0°8698	8 19 20°23	238	319	.8734
16	+1°0323	+1°2237	+0°0301	+0°8711	8 15 24°32	239	320	.8761
17	1°0212	1°2289	0°0313	0°8725	8 11 28°41	240	321	.8789
18	1°0097	1°2340	0°0324	0°8739	8 7 32°50	241	322	.8816
19	+0°9977	+1°2389	+0°0335	+0°8752	8 3 36°59	242	323	.8843
20	0°9852	1°2436	0°0347	0°8765	7 59 40°68	243	324	.8871
21	0°9722	1°2481	0°0359	0°8778	7 55 44°77	244	325	.8898
22	+0°9586	+1°2524	+0°0371	+0°8791	7 51 48°86	245	326	.8926
23	0°9445	1°2566	0°0382	0°8803	7 47 52°95	246	327	.8953
24	0°9297	1°2606	0°0394	0°8816	7 43 57°04	247	328	.8980
25	+0°9143	+1°2644	+0°0406	+0°8827	7 40 1°13	248	329	.9008
26	0°8981	1°2681	0°0418	0°8839	7 36 5°22	249	330	.9035
27	0°8813	1°2716	0°0430	0°8850	7 32 9°31	250	331	.9062
28	+0°8635	+1°2749	+0°0442	+0°8862	7 28 13°40	251	332	.9090
29	0°8449	1°2781	0°0455	0°8872	7 24 17°48	252	333	.9117
30	0°8252	1°2811	0°0467	0°8883	7 20 21°57	253	334	.9145
31	+0°8045	+1°2839	+0°0479	+0°8893	7 16 25°66	254	335	.9172

* Add .0011 if Fraction be required for the time *t*, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiameter passing the Meridian.*	Equation of Time, to be sub ^t . from	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.		added to Apparent Time.	
Thur.	1	h m s 16 31 45.94	10.820	S. 21 54 19.8	22.76	m s 1 10.34	m s 10 34.97	s 0.961
Frid.	2	16 36 5.94	10.846	22 3 13.5	21.70	1 10.42	10 11.59	0.986
Sat.	3	16 40 26.53	10.870	22 11 41.5	20.63	1 10.50	9 47.62	1.010
Sun.	4	16 44 47.69	10.893	22 19 43.7	19.55	1 10.58	9 23.09	1.033
Mon.	5	16 49 9.38	10.915	22 27 19.9	18.46	1 10.66	8 58.02	1.055
Tues.	6	16 53 31.58	10.936	22 34 29.7	17.36	1 10.73	8 32.44	1.076
Wed.	7	16 57 54.27	10.955	22 41 13.1	16.25	1 10.79	8 6.39	1.095
Thur.	8	17 2 17.42	10.973	22 47 29.5	15.13	1 10.86	7 39.86	1.113
Frid.	9	17 6 41.00	10.991	22 53 19.1	14.00	1 10.92	7 12.92	1.131
Sat.	10	17 11 4.99	11.008	22 58 41.5	12.87	1 10.97	6 45.56	1.148
Sun.	11	17 15 29.37	11.023	23 3 36.6	11.73	1 11.02	6 17.80	1.163
Mon.	12	17 19 54.11	11.037	23 8 4.2	10.58	1 11.07	5 49.70	1.177
Tues.	13	17 24 19.16	11.050	23 12 4.2	9.42	1 11.11	5 21.29	1.190
Wed.	14	17 28 44.53	11.063	23 15 36.5	8.26	1 11.15	4 52.56	1.202
Thur.	15	17 33 10.18	11.074	23 18 40.9	7.10	1 11.18	4 23.54	1.213
Frid.	16	17 37 36.06	11.083	23 21 17.4	5.93	1 11.21	3 54.30	1.222
Sat.	17	17 42 2.16	11.091	23 23 25.7	4.76	1 11.24	3 24.84	1.230
Sun.	18	17 46 28.43	11.098	23 25 5.8	3.59	1 11.26	2 55.20	1.237
Mon.	19	17 50 54.85	11.103	23 26 17.8	2.41	1 11.27	2 25.42	1.243
Tues.	20	17 55 21.39	11.107	23 27 1.5	1.23	1 11.28	1 55.52	1.247
Wed.	21	17 59 48.02	11.110	23 27 16.9	0.05	1 11.29	1 25.54	1.250
Thur.	22	18 4 14.69	11.112	23 27 3.8	1.13	1 11.29	0 55.51	1.252
Frid.	23	18 8 41.38	11.112	23 26 22.5	2.31	1 11.29	0 25.45	1.252
Sat.	24	18 13 8.05	11.110	23 25 12.8	3.49	1 11.28	0 4.58	1.250
Sun.	25	18 17 34.67	11.107	23 23 34.8	4.67	1 11.27	0 34.55	1.247
Mon.	26	18 22 1.19	11.103	23 21 28.6	5.85	1 11.25	1 4.44	1.243
Tues.	27	18 26 27.59	11.097	23 18 54.1	7.02	1 11.23	1 34.20	1.237
Wed.	28	18 30 53.82	11.089	23 15 51.6	8.19	1 11.20	2 3.79	1.229
Thur.	29	18 35 19.84	11.079	23 12 21.1	9.35	1 11.17	2 33.18	1.220
Frid.	30	18 39 45.62	11.068	23 8 22.6	10.51	1 11.14	3 2.32	1.209
Sat.	31	18 44 11.11	11.055	23 3 56.4	11.67	1 11.10	3 31.17	1.197
Sun.	32	18 48 36.27		S. 22 59 2.7		1 11.05	3 59.70	

* Mean Time of the Semidiameter passing may be found by subtracting 0^s. 19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to subt. from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
Thur.	1	^{h m s} 16 31 47.85	^{° ' "} S. 21 54 23.9	^{' "} 16 15.9	^{m s} 10 34.80	^{h m s} 16 42 22.65
Frid.	2	16 36 7.78	22 3 17.1	16 16.1	10 11.42	16 46 19.20
Sat.	3	16 40 28.30	22 11 44.9	16 16.2	9 47.46	16 50 15.76
Sun.	4	16 44 49.39	22 19 46.8	16 16.4	9 22.93	16 54 12.32
Mon.	5	16 49 11.01	22 27 22.7	16 16.5	8 57.86	16 58 8.87
Tues.	6	16 53 33.14	22 34 32.2	16 16.6	8 32.29	17 2 5.43
Wed.	7	16 57 55.75	22 41 15.3	16 16.8	8 6.24	17 6 1.99
Thur.	8	17 2 18.82	22 47 31.5	16 16.9	7 39.72	17 9 58.54
Frid.	9	17 6 42.32	22 53 20.8	16 17.0	7 12.78	17 13 55.10
Sat.	10	17 11 6.23	22 58 43.0	16 17.1	6 45.43	17 17 51.66
Sun.	11	17 15 30.53	23 3 37.8	16 17.2	6 17.68	17 21 48.21
Mon.	12	17 19 55.18	23 8 5.2	16 17.3	5 49.59	17 25 44.77
Tues.	13	17 24 20.15	23 12 5.1	16 17.4	5 21.18	17 29 41.33
Wed.	14	17 28 45.43	23 15 37.2	16 17.5	4 52.46	17 33 37.89
Thur.	15	17 33 10.99	23 18 41.5	16 17.6	4 23.45	17 37 34.44
Frid.	16	17 37 36.78	23 21 17.7	16 17.7	3 54.22	17 41 31.00
Sat.	17	17 42 2.79	23 23 26.0	16 17.7	3 24.77	17 45 27.56
Sun.	18	17 46 28.97	23 25 6.0	16 17.8	2 55.14	17 49 24.11
Mon.	19	17 50 55.30	23 26 17.9	16 17.9	2 25.37	17 53 20.67
Tues.	20	17 55 21.75	23 27 1.6	16 17.9	1 55.48	17 57 17.23
Wed.	21	17 59 48.28	23 27 16.9	16 18.0	1 25.51	18 1 13.79
Thur.	22	18 4 14.86	23 27 3.8	16 18.0	0 55.49	18 5 10.35
Frid.	23	18 8 41.46	23 26 22.5	16 18.1	0 25.44	18 9 6.90
Sat.	24	18 13 8.04	23 25 12.8	16 18.1	0 4.58	18 13 3.46
Sun.	25	18 17 34.56	23 23 34.8	16 18.1	0 34.54	18 17 0.02
Mon.	26	18 22 0.99	23 21 28.7	16 18.1	1 4.42	18 20 56.57
Tues.	27	18 26 27.30	23 18 54.3	16 18.2	1 34.17	18 24 53.13
Wed.	28	18 30 53.44	23 15 51.8	16 18.2	2 3.75	18 28 49.69
Thur.	29	18 35 19.37	23 12 21.5	16 18.2	2 33.13	18 32 46.24
Frid.	30	18 39 45.06	23 8 23.2	16 18.2	3 2.26	18 36 42.80
Sat.	31	18 44 10.46	23 3 57.1	16 18.2	3 31.10	18 40 39.36
Sun.	32	18 48 35.54	S. 22 59 3.5	16 18.2	3 59.62	18 44 35.92

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	249 36 56.0	N.0° 72	9.9936793	15 51.6	15 54.9	58 6.5	58 18.7
2	250 37 50.6	0° 77	9.9936130	15 57.9	16 0.5	58 29.6	58 39.2
3	251 38 46.1	0° 80	9.9935482	16 2.8	16 4.8	58 47.5	58 54.6
4	252 39 42.4	0° 78	9.9934849	16 6.3	16 7.6	59 0.4	59 5.2
5	253 40 39.3	0° 74	9.9934234	16 8.6	16 9.3	59 8.8	59 11.4
6	254 41 36.8	0° 67	9.9933638	16 9.7	16 9.8	59 12.9	59 13.2
7	255 42 34.9	0° 56	9.9933062	16 9.6	16 9.1	59 12.5	59 10.6
8	256 43 33.6	0° 43	9.9932508	16 8.2	16 7.0	59 7.3	59 2.7
9	257 44 33.0	0° 30	9.9931978	16 5.3	16 3.2	58 56.6	58 49.0
10	258 45 32.9	0° 16	9.9931473	16 0.7	15 57.7	58 39.8	58 28.9
11	259 46 33.5	N.0° 04	9.9930995	15 54.4	15 50.6	58 16.5	58 2.6
12	260 47 34.8	S.0° 08	9.9930544	15 46.5	15 41.9	57 47.3	57 30.8
13	261 48 36.8	0° 18	9.9930120	15 37.1	15 32.2	57 13.3	56 55.1
14	262 49 39.5	0° 26	9.9929725	15 27.1	15 21.9	56 36.5	56 17.8
15	263 50 43.0	0° 30	9.9929357	15 16.9	15 12.1	55 59.4	55 41.6
16	264 51 47.2	0° 33	9.9929015	15 7.4	15 3.1	55 24.6	55 8.8
17	265 52 52.1	0° 32	9.9928697	14 59.2	14 55.8	54 54.5	54 42.0
18	266 53 57.7	0° 29	9.9928408	14 52.9	14 50.7	54 31.5	54 23.2
19	267 55 4.0	0° 24	9.9928144	14 49.0	14 48.1	54 17.3	54 13.8
20	268 56 11.0	0° 18	9.9927903	14 47.9	14 48.4	54 13.0	54 14.8
21	269 57 18.7	S.0° 09	9.9927684	14 49.6	14 51.5	54 19.2	54 26.3
22	270 58 27.1	N.0° 02	9.9927488	14 54.2	14 57.5	54 36.0	54 48.1
23	271 59 36.1	0° 13	9.9927313	15 1.4	15 6.0	55 2.6	55 19.2
24	273 0 45.7	0° 25	9.9927159	15 11.0	15 16.5	55 37.7	55 57.7
25	274 1 55.9	0° 35	9.9927024	15 22.3	15 28.3	56 19.0	56 41.2
26	275 3 6.6	0° 47	9.9926907	15 34.5	15 40.7	57 3.8	57 26.4
27	276 4 17.6	0° 58	9.9926807	15 46.8	15 52.5	57 48.5	58 9.7
28	277 5 29.0	0° 67	9.9926723	15 57.9	16 2.9	58 29.6	58 47.7
29	278 6 40.5	0° 72	9.9926655	16 7.2	16 10.9	59 3.6	59 17.1
30	279 7 52.0	0° 75	9.9926603	16 13.9	16 16.1	59 28.0	59 36.1
31	280 9 3.4	0° 75	9.9926568	16 17.6	16 18.3	59 41.5	59 44.2
32	281 10 14.6	N.0° 70	9.9926551	16 18.3	16 17.7	59 44.3	59 42.1

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.								
		Longitude.		Latitude.		Age.	Meridian Passage.		
		Noon.	Midnight.	Noon.	Midnight.			Noon.	
Thur.	1	276 58 3' 3"	283 51 22' 6"	N. 4 24 48' 1"	N. 4 42 41' 4"	2' 2"	1 51' 1"		
Frid.	2	290 47 23' 1"	297 45 40' 8"	4 56 32' 9"	5 6 5' 7"	3' 2"	2 46' 6"		
Sat.	3	304 45 52' 1"	311 47 34' 3"	5 11 7' 3"	5 11 30' 0"	4' 2"	3 41' 0"		
Sun.	4	318 50 25' 7"	325 54 6' 8"	5 7 11' 1"	4 58 12' 7"	5' 2"	4 34' 1"		
Mon.	5	332 58 20' 0"	340 2 49' 6"	4 44 41' 8"	4 26 50' 4"	6' 2"	5 25' 9"		
Tues.	6	347 7 22' 1"	354 11 45' 1"	4 4 54' 8"	3 39 15' 4"	7' 2"	6 17' 1"		
Wed.	7	1 15 47' 3"	8 19 17' 8"	3 10 16' 6"	2 38 26' 0"	8' 2"	7 8' 3"		
Thur.	8	15 22 5' 5"	22 23 58' 8"	2 4 14' 3"	1 28 14' 7"	9' 2"	8 0' 2"		
Frid.	9	29 24 44' 3"	36 24 7' 8"	N. 0 51 1' 8"	N. 0 13 11' 6"	10' 2"	8 53' 4"		
Sat.	10	43 21 52' 9"	50 17 42' 0"	S. 0 24 39' 7"	S. 1 1 56' 1"	11' 2"	9 47' 9"		
Sun.	11	57 11 15' 9"	64 2 14' 8"	1 38 3' 4"	2 12 29' 1"	12' 2"	10 43' 3"		
Mon.	12	70 50 18' 2"	77 35 7' 0"	2 44 44' 0"	3 14 21' 9"	13' 2"	11 38' 8"		
Tues.	13	84 16 22' 8"	90 53 49' 9"	3 41 0' 8"	4 4 22' 9"	14' 2"	12 33' 3"		
Wed.	14	97 27 15' 2"	103 56 29' 8"	4 24 14' 5"	4 40 26' 6"	15' 2"	13 25' 9"		
Thur.	15	110 21 28' 8"	116 42 12' 2"	4 52 53' 7"	5 1 34' 0"	16' 2"	14 15' 9"		
Frid.	16	122 58 44' 6"	129 11 15' 8"	5 6 28' 9"	5 7 42' 6"	17' 2"	15 3' 1"		
Sat.	17	135 20 0' 5"	141 25 17' 5"	5 5 21' 0"	4 59 32' 3"	18' 2"	15 48' 1"		
Sun.	18	147 27 30' 7"	153 27 7' 2"	4 50 25' 2"	4 38 9' 8"	19' 2"	16 31' 2"		
Mon.	19	159 24 37' 9"	165 20 36' 3"	4 22 56' 8"	4 4 57' 1"	20' 2"	17 13' 2"		
Tues.	20	171 15 38' 9"	177 10 23' 6"	3 44 22' 5"	3 21 24' 4"	21' 2"	17 55' 1"		
Wed.	21	183 5 29' 6"	189 1 37' 1"	2 56 15' 0"	2 29 7' 3"	22' 2"	18 37' 5"		
Thur.	22	194 59 26' 5"	200 59 37' 7"	2 0 14' 6"	1 29 51' 7"	23' 2"	19 21' 4"		
Frid.	23	207 2 49' 6"	213 9 39' 4"	S. 0 58 14' 0"	S. 0 25 38' 7"	24' 2"	20 7' 5"		
Sat.	24	219 20 41' 0"	225 36 25' 6"	N. 0 7 35' 2"	N. 0 41 6' 6"	25' 2"	20 56' 3"		
Sun.	25	231 57 19' 5"	238 23 43' 4"	1 14 32' 7"	1 47 28' 0"	26' 2"	21 48' 0"		
Mon.	26	244 55 51' 8"	251 33 52' 2"	2 19 25' 3"	2 49 55' 6"	27' 2"	22 42' 6"		
Tues.	27	258 17 43' 9"	265 7 17' 3"	3 18 28' 5"	3 44 33' 2"	28' 2"	23 39' 0"		
Wed.	28	272 2 14' 6"	279 2 9' 5"	4 7 39' 2"	4 27 17' 4"	29' 2"	0		
Thur.	29	286 6 27' 8"	293 14 28' 9"	4 43 1' 7"	4 54 29' 2"	0' 6"	0 36' 1"		
Frid.	30	300 25 26' 9"	307 38 32' 9"	5 1 22' 6"	5 3 29' 9"	1' 6"	1 32' 8"		
Sat.	31	314 52 57' 0"	322 7 50' 3"	5 0 46' 0"	4 53 11' 9"	2' 6"	2 28' 2"		
Sun.	32	329 22 27' 2"	336 36 6' 6"	N. 4 40 55' 3"	N. 4 24 10' 2"	3' 6"	3 22' 0"		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 1.				SATURDAY 3.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	18 29 22.37	S. 18 51 49.4	34.52	0	20 23 19.11	S. 14 2 51.3	84.37
1	18 31 46.46	18 48 22.3	35.69	1	20 25 38.90	13 54 25.1	85.22
2	18 34 10.53	18 44 48.1	36.85	2	20 27 58.56	13 45 53.7	86.06
3	18 36 34.57	18 41 7.0	38.01	3	20 30 18.08	13 37 17.4	86.90
4	18 38 58.59	18 37 18.9	39.17	4	20 32 37.48	13 28 36.0	87.72
5	18 41 22.57	18 33 23.9	40.33	5	20 34 56.74	13 19 49.7	88.53
6	18 43 46.51	18 29 21.9	41.48	6	20 37 15.87	13 10 58.5	89.33
7	18 46 10.41	18 25 13.1	42.63	7	20 39 34.87	13 2 2.5	90.12
8	18 48 34.27	18 20 57.3	43.77	8	20 41 53.74	12 53 1.8	90.91
9	18 50 58.08	18 16 34.7	44.91	9	20 44 12.47	12 43 56.3	91.68
10	18 53 21.84	18 12 5.2	46.04	10	20 46 31.07	12 34 46.2	92.45
11	18 55 45.54	18 7 29.0	47.17	11	20 48 49.54	12 25 31.6	93.20
12	18 58 9.19	18 2 46.0	48.30	12	20 51 7.88	12 16 12.4	93.93
13	19 0 32.77	17 57 56.2	49.42	13	20 53 26.09	12 6 48.8	94.67
14	19 2 56.29	17 52 59.7	50.53	14	20 55 44.17	11 57 20.8	95.39
15	19 5 19.74	17 47 56.5	51.64	15	20 58 2.11	11 47 48.4	96.10
16	19 7 43.12	17 42 46.7	52.75	16	21 0 19.93	11 38 11.8	96.81
17	19 10 6.43	17 37 30.2	53.85	17	21 2 37.62	11 28 31.0	97.50
18	19 12 29.66	17 32 7.1	54.94	18	21 4 55.18	11 18 46.0	98.18
19	19 14 52.81	17 26 37.5	56.03	19	21 7 12.62	11 8 56.9	98.85
20	19 17 15.88	17 21 1.3	57.11	20	21 9 29.92	10 59 3.8	99.51
21	19 19 38.86	17 15 18.7	58.18	21	21 11 47.10	10 49 6.7	100.16
22	19 22 1.75	17 9 29.6	59.25	22	21 14 4.16	10 39 5.8	100.80
23	19 24 24.55	S. 17 3 34.1	60.32	23	21 16 21.10	S. 10 29 1.0	101.43
FRIDAY 2.				SUNDAY 4.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	19 26 47.26	S. 16 57 32.2	61.37	0	21 18 37.91	S. 10 18 52.4	102.05
1	19 29 9.87	16 51 24.0	62.42	1	21 20 54.60	10 8 40.1	102.65
2	19 31 32.39	16 45 9.5	63.46	2	21 23 11.18	9 58 24.2	103.24
3	19 33 54.80	16 38 48.8	64.50	3	21 25 27.63	9 48 4.8	103.83
4	19 36 17.11	16 32 21.8	65.52	4	21 27 43.97	9 37 41.8	104.40
5	19 38 39.32	16 25 48.7	66.53	5	21 30 0.19	9 27 15.4	104.97
6	19 41 1.42	16 19 9.5	67.55	6	21 32 16.30	9 16 45.6	105.52
7	19 43 23.42	16 12 24.2	68.56	7	21 34 32.30	9 6 12.4	106.06
8	19 45 45.30	16 5 32.9	69.55	8	21 36 48.18	8 55 36.1	106.60
9	19 48 7.07	15 58 35.5	70.53	9	21 39 3.96	8 44 56.5	107.12
10	19 50 28.72	15 51 32.3	71.52	10	21 41 19.62	8 34 13.8	107.62
11	19 52 50.26	15 44 23.2	72.50	11	21 43 35.18	8 23 28.1	108.12
12	19 55 11.68	15 37 8.2	73.47	12	21 45 50.63	8 12 39.4	108.60
13	19 57 32.98	15 29 47.4	74.42	13	21 48 5.98	8 1 47.8	109.08
14	19 59 54.16	15 22 20.9	75.37	14	21 50 21.24	7 50 53.3	109.55
15	20 2 15.22	15 14 48.7	76.30	15	21 52 36.39	7 39 56.0	110.00
16	20 4 36.16	15 7 10.9	77.23	16	21 54 51.45	7 28 56.0	110.44
17	20 6 56.97	14 59 27.5	78.16	17	21 57 6.41	7 17 53.4	110.87
18	20 9 17.66	14 51 38.5	79.08	18	21 59 21.28	7 6 48.1	111.29
19	20 11 38.22	14 43 44.0	79.98	19	22 1 36.06	6 55 40.4	111.70
20	20 13 58.66	14 35 44.1	80.87	20	22 3 50.75	6 44 30.2	112.10
21	20 16 18.97	14 27 38.9	81.77	21	22 6 5.35	6 33 17.6	112.49
22	20 18 39.14	14 19 28.3	82.65	22	22 8 19.87	6 22 2.7	112.86
23	20 20 59.19	14 11 12.4	83.52	23	22 10 34.31	6 10 45.5	113.23
24	20 23 19.11	S. 14 2 51.3		24	22 12 48.67	S. 5 59 26.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 5.				WEDNESDAY 7.			
0	h m s 22 12 48.67	S. 5 59 26.1	113.58	0	h m s 23 59 34.83	N. 3 24 42.2	117.16
1	22 15 2.95	5 48 4.6	113.92	1	0 1 48.50	3 36 25.2	116.96
2	22 17 17.16	5 36 41.1	114.25	2	0 4 2.23	3 48 6.9	116.74
3	22 19 31.30	5 25 15.6	114.57	3	0 6 16.02	3 59 47.4	116.51
4	22 21 45.36	5 13 48.1	114.88	4	0 8 29.86	4 11 26.4	116.27
5	22 23 59.36	5 2 18.8	115.17	5	0 10 43.77	4 23 4.0	116.02
6	22 26 13.29	4 50 47.8	115.46	6	0 12 57.74	4 34 40.2	115.75
7	22 28 27.16	4 39 15.0	115.74	7	0 15 11.77	4 46 14.7	115.48
8	22 30 40.97	4 27 40.5	116.00	8	0 17 25.88	4 57 47.5	115.19
9	22 32 54.72	4 16 4.5	116.25	9	0 19 40.05	5 9 18.7	114.90
10	22 35 8.42	4 4 27.0	116.50	10	0 21 54.30	5 20 48.1	114.59
11	22 37 22.06	3 52 48.0	116.73	11	0 24 8.62	5 32 15.6	114.26
12	22 39 35.65	3 41 7.7	116.94	12	0 26 23.03	5 43 41.2	113.93
13	22 41 49.20	3 29 26.1	117.14	13	0 28 37.51	5 55 4.8	113.58
14	22 44 2.70	3 17 43.2	117.34	14	0 30 52.08	6 6 26.3	113.23
15	22 46 16.16	3 5 59.2	117.53	15	0 33 6.73	6 17 45.6	112.86
16	22 48 29.58	2 54 14.0	117.70	16	0 35 21.47	6 29 2.8	112.48
17	22 50 42.96	2 42 27.8	117.85	17	0 37 36.30	6 40 17.7	112.09
18	22 52 56.31	2 30 40.7	118.00	18	0 39 51.22	6 51 30.2	111.69
19	22 55 9.63	2 18 52.7	118.14	19	0 42 6.23	7 2 40.3	111.28
20	22 57 22.92	2 7 3.8	118.27	20	0 44 21.34	7 13 48.0	110.86
21	22 59 36.19	1 55 14.2	118.39	21	0 46 36.54	7 24 53.1	110.42
22	23 1 49.43	1 43 23.8	118.49	22	0 48 51.85	7 35 55.7	109.98
23	23 4 2.65	S. 1 31 32.9	118.59	23	0 51 7.25	N. 7 46 55.5	109.52
TUESDAY 6.				THURSDAY 8.			
0	23 6 15.85	S. 1 19 41.3	118.67	0	0 53 22.75	N. 7 57 52.6	109.04
1	23 8 29.04	1 7 49.3	118.73	1	0 55 38.36	8 8 46.9	108.56
2	23 10 42.22	0 55 56.9	118.79	2	0 57 54.08	8 19 38.2	108.07
3	23 12 55.39	0 44 4.2	118.84	3	1 0 9.90	8 30 26.7	107.57
4	23 15 8.55	0 32 11.1	118.87	4	1 2 25.84	8 41 12.1	107.05
5	23 17 21.71	0 20 17.9	118.90	5	1 4 41.89	8 51 54.4	106.53
6	23 19 34.88	S. 0 8 24.5	118.91	6	1 6 58.04	9 2 33.5	105.99
7	23 21 48.04	N. 0 3 29.0	118.91	7	1 9 14.32	9 13 9.4	105.44
8	23 24 1.21	0 15 22.4	118.90	8	1 11 30.71	9 23 42.1	104.88
9	23 26 14.38	0 27 15.8	118.88	9	1 13 47.21	9 34 11.4	104.31
10	23 28 27.57	0 39 9.1	118.84	10	1 16 3.83	9 44 37.2	103.73
11	23 30 40.77	0 51 2.1	118.80	11	1 18 20.57	9 54 59.6	103.13
12	23 32 53.98	1 2 54.9	118.74	12	1 20 37.43	10 5 18.4	102.52
13	23 35 7.22	1 14 47.4	118.67	13	1 22 54.41	10 15 33.6	101.91
14	23 37 20.47	1 26 39.4	118.59	14	1 25 11.52	10 25 45.0	101.28
15	23 39 33.75	1 38 31.0	118.50	15	1 27 28.74	10 35 52.7	100.65
16	23 41 47.06	1 50 22.0	118.40	16	1 29 46.09	10 45 56.6	100.00
17	23 44 0.40	2 2 12.4	118.28	17	1 32 3.57	10 55 56.6	99.34
18	23 46 13.77	2 14 2.1	118.16	18	1 34 21.17	11 5 52.6	98.67
19	23 48 27.18	2 25 51.1	118.02	19	1 36 38.90	11 15 44.6	97.99
20	23 50 40.63	2 37 39.2	117.88	20	1 38 56.75	11 25 32.6	97.30
21	23 52 54.11	2 49 26.5	117.72	21	1 41 14.73	11 35 16.4	96.60
22	23 55 7.64	3 1 12.8	117.55	22	1 43 32.84	11 44 56.0	95.89
23	23 57 21.21	3 12 58.1	117.36	23	1 45 51.08	11 54 31.3	95.17
24	23 59 34.83	N. 3 24 42.2		24	1 48 9.45	N. 12 4 2.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 9.				SUNDAY 11.			
0	1 48 9.45	N.12 4 2.3	94.43	0	3 41 10.19	N.17 57 6.8	48.61
1	1 50 27.95	12 13 28.9	93.68	1	3 43 33.68	18 1 58.5	47.48
2	1 52 46.57	12 22 51.0	92.93	2	3 45 57.22	18 6 43.4	46.35
3	1 55 5.33	12 32 8.6	92.17	3	3 48 20.80	18 11 21.5	45.22
4	1 57 24.22	12 41 21.6	91.39	4	3 50 44.42	18 15 52.8	44.08
5	1 59 43.23	12 50 29.9	90.61	5	3 53 8.08	18 20 17.3	42.93
6	2 2 2.38	12 59 33.5	89.81	6	3 55 31.78	18 24 34.9	41.78
7	2 4 21.65	13 8 32.4	89.01	7	3 57 55.50	18 28 45.6	40.63
8	2 6 41.05	13 17 26.4	88.19	8	4 0 19.24	18 32 49.4	39.48
9	2 9 0.58	13 26 15.6	87.37	9	4 2 43.01	18 36 46.2	38.31
10	2 11 20.24	13 34 59.8	86.53	10	4 5 6.80	18 40 36.1	37.16
11	2 13 40.03	13 43 39.0	85.69	11	4 7 30.60	18 44 19.1	35.99
12	2 15 59.95	13 52 13.1	84.83	12	4 9 54.41	18 47 55.0	34.81
13	2 18 19.99	14 0 42.1	83.97	13	4 12 18.23	18 51 23.9	33.65
14	2 20 40.16	14 9 5.9	83.10	14	4 14 42.05	18 54 45.9	32.48
15	2 23 0.45	14 17 24.5	82.21	15	4 17 5.86	18 58 0.7	31.30
16	2 25 20.87	14 25 37.8	81.32	16	4 19 29.67	19 1 8.5	30.13
17	2 27 41.41	14 33 45.7	80.42	17	4 21 53.47	19 4 9.3	28.95
18	2 30 2.07	14 41 48.2	79.51	18	4 24 17.26	19 7 3.0	27.77
19	2 32 22.85	14 49 45.3	78.59	19	4 26 41.03	19 9 49.7	26.59
20	2 34 43.75	14 57 36.8	77.66	20	4 29 4.77	19 12 29.2	25.41
21	2 37 4.77	15 5 22.8	76.73	21	4 31 28.49	19 15 1.6	24.23
22	2 39 25.91	15 13 3.2	75.78	22	4 33 52.18	19 17 27.0	23.04
23	2 41 47.16	N.15 20 37.9	74.83	23	4 36 15.83	N.19 19 45.2	21.85
SATURDAY 10.				MONDAY 12.			
0	2 44 8.53	N.15 28 6.8	73.87	0	4 38 39.45	N.19 21 56.3	20.67
1	2 46 30.01	15 35 30.0	72.90	1	4 41 3.02	19 24 0.3	19.48
2	2 48 51.60	15 42 47.4	71.92	2	4 43 26.54	19 25 57.2	18.30
3	2 51 13.30	15 49 59.0	70.94	3	4 45 50.01	19 27 47.1	17.11
4	2 53 35.11	15 57 4.6	69.94	4	4 48 13.42	19 29 29.8	15.93
5	2 55 57.02	16 4 4.3	68.94	5	4 50 36.77	19 31 5.3	14.75
6	2 58 19.04	16 10 57.9	67.93	6	4 53 0.06	19 32 33.8	13.56
7	3 0 41.15	16 17 45.5	66.91	7	4 55 23.27	19 33 55.2	12.38
8	3 3 3.37	16 24 27.0	65.89	8	4 57 46.41	19 35 9.5	11.20
9	3 5 25.68	16 31 2.3	64.86	9	5 0 9.48	19 36 16.7	10.02
10	3 7 48.09	16 37 31.4	63.82	10	5 2 32.46	19 37 16.8	8.84
11	3 10 10.58	16 43 54.3	62.77	11	5 4 55.36	19 38 9.9	7.66
12	3 12 33.17	16 50 10.9	61.72	12	5 7 18.17	19 38 55.8	6.49
13	3 14 55.84	16 56 21.2	60.66	13	5 9 40.88	19 39 34.7	5.31
14	3 17 18.60	17 2 25.1	59.59	14	5 12 3.49	19 40 6.6	4.14
15	3 19 41.44	17 8 22.7	58.52	15	5 14 26.00	19 40 31.4	2.97
16	3 22 4.36	17 14 13.8	57.44	16	5 16 48.40	19 40 49.3	1.80
17	3 24 27.36	17 19 58.4	56.36	17	5 19 10.69	19 41 0.1	0.64
18	3 26 50.43	17 25 36.5	55.27	18	5 21 32.86	19 41 3.9	0.51
19	3 29 13.56	17 31 8.1	54.17	19	5 23 54.92	19 41 0.8	1.68
20	3 31 36.77	17 36 33.2	53.07	20	5 26 16.85	19 40 50.7	2.83
21	3 34 0.03	17 41 51.6	51.96	21	5 28 38.65	19 40 33.7	3.99
22	3 36 23.36	17 47 3.3	50.85	22	5 31 0.32	19 40 9.8	5.14
23	3 38 46.75	17 52 8.4	49.73	23	5 33 21.85	19 39 39.0	6.39
24	3 41 10.19	N.17 57 6.8		24	5 35 43.24	N.19 39 1.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 13.				THURSDAY 15.			
0	5 35 43.24	N.19 39 1'3	7.42	0	7 25 2.69	N.17 4 55.4	55.17
1	5 38 4.49	19 38 16.8	8.56	1	7 27 13.65	16 59 24.4	55.98
2	5 40 25.59	19 37 25.4	9.69	2	7 29 24.35	16 53 48.5	56.98
3	5 42 46.54	19 36 27.3	10.82	3	7 31 34.79	16 48 7.9	57.58
4	5 45 7.34	19 35 22.4	11.94	4	7 33 44.98	16 42 22.4	58.37
5	5 47 27.97	19 34 10.7	13.06	5	7 35 54.91	16 36 32.2	59.15
6	5 49 48.44	19 32 52.4	14.17	6	7 38 4.58	16 30 37.3	59.92
7	5 52 8.75	19 31 27.3	15.28	7	7 40 13.99	16 24 37.8	60.68
8	5 54 28.89	19 29 55.6	16.39	8	7 42 23.14	16 18 33.8	61.43
9	5 56 48.86	19 28 17.3	17.49	9	7 44 32.04	16 12 25.2	62.18
10	5 59 8.64	19 26 32.4	18.58	10	7 46 40.68	16 6 12.1	62.92
11	6 1 28.25	19 24 40.9	19.67	11	7 48 49.07	15 59 54.6	63.64
12	6 3 47.68	19 22 42.9	20.75	12	7 50 57.19	15 53 32.8	64.36
13	6 6 6.92	19 20 38.4	21.82	13	7 53 5.06	15 47 6.6	65.07
14	6 8 25.97	19 18 27.5	22.90	14	7 55 12.67	15 40 36.2	65.78
15	6 10 44.83	19 16 10.1	23.96	15	7 57 20.03	15 34 1.5	66.47
16	6 13 3.49	19 13 46.3	25.02	16	7 59 27.13	15 27 22.7	67.16
17	6 15 21.95	19 11 16.2	26.07	17	8 1 33.98	15 20 39.7	67.84
18	6 17 40.21	19 8 39.8	27.12	18	8 3 40.57	15 13 52.7	68.51
19	6 19 58.27	19 5 57.1	28.16	19	8 5 46.90	15 7 1.6	69.17
20	6 22 16.12	19 3 8.1	29.19	20	8 7 52.99	15 0 6.6	69.83
21	6 24 33.75	19 0 12.9	30.22	21	8 9 58.82	14 53 7.6	70.47
22	6 26 51.18	18 57 11.6	31.24	22	8 12 4.39	14 46 4.8	71.11
23	6 29 8.39	N.18 54 4.2	32.26	23	8 14 9.72	N.14 38 58.1	71.74
WEDNESDAY 14.				FRIDAY 16.			
0	6 31 25.38	N.18 50 50.6	33.26	0	8 16 14.79	N.14 31 47.6	72.37
1	6 33 42.15	18 47 31.0	34.27	1	8 18 19.62	14 24 33.4	72.69
2	6 35 58.70	18 44 5.4	35.26	2	8 20 24.19	14 17 15.5	73.58
3	6 38 15.03	18 40 33.9	36.25	3	8 22 28.52	14 9 54.0	74.18
4	6 40 31.12	18 36 56.4	37.22	4	8 24 32.61	14 2 29.0	74.77
5	6 42 46.99	18 33 13.1	38.19	5	8 26 36.45	13 55 0.4	75.35
6	6 45 2.63	18 29 23.9	39.16	6	8 28 40.04	13 47 28.3	75.92
7	6 47 18.03	18 25 29.0	40.11	7	8 30 43.40	13 39 52.7	76.48
8	6 49 33.20	18 21 28.3	41.06	8	8 32 46.51	13 32 13.8	77.04
9	6 51 48.13	18 17 21.9	42.00	9	8 34 49.39	13 24 31.6	77.59
10	6 54 2.83	18 13 9.9	42.93	10	8 36 52.03	13 16 46.0	78.13
11	6 56 17.28	18 8 52.3	43.86	11	8 38 54.43	13 8 57.2	78.65
12	6 58 31.49	18 4 29.2	44.78	12	8 40 56.59	13 1 5.3	79.18
13	7 0 45.46	18 0 0.5	45.69	13	8 42 58.53	12 53 10.2	79.70
14	7 2 59.18	17 55 26.4	46.59	14	8 45 0.23	12 45 12.0	80.21
15	7 5 12.66	17 50 46.9	47.49	15	8 47 1.71	12 37 10.7	80.71
16	7 7 25.89	17 46 1.9	48.37	16	8 49 2.95	12 29 6.4	81.21
17	7 9 38.87	17 41 11.7	49.25	17	8 51 3.98	12 20 59.2	81.69
18	7 11 51.60	17 36 16.2	50.12	18	8 53 4.78	12 12 49.0	82.17
19	7 14 4.08	17 31 15.5	50.98	19	8 55 5.35	12 4 36.0	82.64
20	7 16 16.31	17 26 9.6	51.83	20	8 57 5.71	11 56 20.1	83.11
21	7 18 28.29	17 20 58.7	52.68	21	8 59 5.84	11 48 1.5	83.56
22	7 20 40.01	17 15 42.6	53.52	22	9 1 5.76	11 39 40.1	84.01
23	7 22 51.48	17 10 21.5	54.35	23	9 3 5.47	11 31 16.0	84.46
24	7 25 2.69	N.17 4 55.4		24	9 5 4.97	N.11 22 49.3	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
SATURDAY 17.				MONDAY 19.			
0	9 5 4.97	N. 11 22 49.3	84.89	0	10 37 19.91	N. 3 58 59.3	97.88
1	9 7 4.26	11 14 20.0	85.32	1	10 39 12.17	3 49 12.0	98.00
2	9 9 3.33	11 5 48.1	85.73	2	10 41 4.35	3 39 84.0	98.12
3	9 11 2.20	10 57 13.7	86.15	3	10 42 56.47	3 29 35.3	98.23
4	9 13 0.87	10 48 36.8	86.55	4	10 44 48.51	3 19 45.9	98.34
5	9 14 59.33	10 39 57.5	86.95	5	10 46 40.49	3 9 55.8	98.44
6	9 16 57.60	10 31 15.8	87.34	6	10 48 32.41	3 0 5.2	98.54
7	9 18 55.67	10 22 31.8	87.72	7	10 50 24.27	2 50 14.0	98.63
8	9 20 53.55	10 13 45.4	88.10	8	10 52 16.08	2 40 82.2	98.71
9	9 22 51.24	10 4 56.8	88.47	9	10 54 7.83	2 30 29.9	98.79
10	9 24 48.73	9 56 6.0	88.83	10	10 55 59.53	2 20 37.2	98.87
11	9 26 46.04	9 47 13.0	89.19	11	10 57 51.19	2 10 44.0	98.94
12	9 28 43.17	9 38 17.8	89.54	12	10 59 42.80	2 0 50.3	99.00
13	9 30 40.11	9 29 20.6	89.88	13	11 1 34.38	1 50 56.3	99.06
14	9 32 36.88	9 20 21.3	90.22	14	11 3 25.91	1 41 1.9	99.12
15	9 34 33.47	9 11 20.0	90.55	15	11 5 17.42	1 31 7.2	99.17
16	9 36 29.88	9 2 16.7	90.86	16	11 7 8.90	1 21 12.2	99.21
17	9 38 26.13	8 53 11.6	91.18	17	11 9 0.35	1 11 17.0	99.25
18	9 40 22.20	8 44 4.5	91.49	18	11 10 51.77	1 1 21.5	99.28
19	9 42 18.11	8 34 55.5	91.79	19	11 12 43.18	0 51 25.8	99.30
20	9 44 13.86	8 25 44.8	92.09	20	11 14 34.57	0 41 30.0	99.33
21	9 46 9.44	8 16 32.2	92.38	21	11 16 25.94	0 31 34.1	99.34
22	9 48 4.87	8 7 17.9	92.66	22	11 18 17.31	0 21 38.0	99.35
23	9 50 0.14	N. 7 58 2.0	92.94	23	11 20 8.67	N. 0 11 41.9	99.36
SUNDAY 18.				TUESDAY 20.			
0	9 51 55.26	N. 7 48 44.4	93.20	0	11 22 0.02	N. 0 1 45.7	99.35
1	9 53 50.23	7 39 25.2	93.47	1	11 23 51.38	S. 0 8 10.4	99.35
2	9 55 45.05	7 30 4.4	93.73	2	11 25 42.73	0 18 6.5	99.34
3	9 57 39.73	7 20 42.0	93.98	3	11 27 34.10	0 8 2.6	99.33
4	9 59 34.27	7 11 18.2	94.22	4	11 29 25.47	0 37 58.5	99.31
5	10 1 28.67	7 1 52.8	94.46	5	11 31 16.86	0 47 54.4	99.28
6	10 3 22.94	6 52 26.0	94.70	6	11 33 8.26	0 57 50.0	99.25
7	10 5 17.07	6 42 57.9	94.92	7	11 34 59.68	1 7 45.5	99.21
8	10 7 11.07	6 33 28.3	95.14	8	11 36 51.13	1 17 40.8	99.17
9	10 9 4.94	6 23 57.5	95.36	9	11 38 42.60	1 27 35.8	99.12
10	10 10 58.69	6 14 25.3	95.57	10	11 40 34.09	1 37 30.6	99.07
11	10 12 52.32	6 4 51.9	95.77	11	11 42 25.62	1 47 25.0	99.01
12	10 14 45.83	5 55 17.2	95.97	12	11 44 17.19	1 57 19.1	98.95
13	10 16 39.23	5 45 41.4	96.16	13	11 46 8.80	2 7 12.8	98.89
14	10 18 32.51	5 36 4.4	96.35	14	11 48 0.44	2 17 6.1	98.81
15	10 20 25.69	5 26 26.3	96.53	15	11 49 52.14	2 26 59.0	98.73
16	10 22 18.76	5 16 47.2	96.70	16	11 51 43.88	2 36 51.4	98.65
17	10 24 11.73	5 7 6.9	96.87	17	11 53 35.67	2 46 43.3	98.56
18	10 26 4.60	4 57 25.7	97.03	18	11 55 27.52	2 56 34.7	98.47
19	10 27 57.38	4 47 43.5	97.19	19	11 57 19.43	3 6 25.5	98.37
20	10 29 50.06	4 38 0.4	97.34	20	11 59 11.40	3 16 15.7	98.26
21	10 31 42.65	4 28 16.4	97.48	21	12 1 3.43	3 26 5.3	98.15
22	10 33 35.15	4 18 31.5	97.62	22	12 2 55.53	3 35 54.2	98.04
23	10 35 27.57	4 8 45.8	97.75	23	12 4 47.71	3 45 42.4	97.92
24	10 37 19.91	N. 3 58 59.3		24	12 6 39.95	S. 3 55.29.9	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 21.				FRIDAY 23.			
0	12 6 39.95	S. 3 55 29.9	97° 79'	0	13 38 57.73	S. 11 19 57.1	84° 73'
1	12 8 32.28	4 5 16.6	97° 66'	1	13 40 57.44	11 28 25.5	84° 29'
2	12 10 24.69	4 15 2.6	97° 52'	2	13 42 57.38	11 36 51.2	83° 85'
3	12 12 17.18	4 24 47.7	97° 38'	3	13 44 57.53	11 45 14.3	83° 40'
4	12 14 9.76	4 34 32.0	97° 23'	4	13 46 57.92	11 53 34.7	82° 95'
5	12 16 2.43	4 44 15.4	97° 08'	5	13 48 58.54	12 1 52.4	82° 48'
6	12 17 55.21	4 53 57.8	96° 92'	6	13 50 59.39	12 10 7.3	82° 01'
7	12 19 48.07	5 3 39.3	96° 75'	7	13 53 0.48	12 18 19.3	81° 53'
8	12 21 41.03	5 13 19.8	96° 58'	8	13 55 1.80	12 26 28.5	81° 04'
9	12 23 34.10	5 22 59.3	96° 41'	9	13 57 3.36	12 34 34.8	80° 55'
10	12 25 27.28	5 32 37.8	96° 22'	10	13 59 5.17	12 42 38.1	80° 05'
11	12 27 20.56	5 42 15.1	96° 03'	11	14 1 7.21	12 50 38.4	79° 54'
12	12 29 13.96	5 51 51.3	95° 84'	12	14 3 9.51	12 58 35.6	79° 02'
13	12 31 7.47	6 1 26.3	95° 64'	13	14 5 12.05	13 6 29.7	78° 50'
14	12 33 1.11	6 11 0.2	95° 43'	14	14 7 14.84	13 14 20.7	77° 96'
15	12 34 54.87	6 20 32.8	95° 22'	15	14 9 17.88	13 22 8.4	77° 42'
16	12 36 48.75	6 30 4.1	95° 01'	16	14 11 21.17	13 29 52.9	76° 87'
17	12 38 42.76	6 39 34.2	94° 78'	17	14 13 24.72	13 37 34.1	76° 31'
18	12 40 36.91	6 49 2.9	94° 55'	18	14 15 28.53	13 45 12.0	75° 75'
19	12 42 31.19	6 58 30.2	94° 32'	19	14 17 32.59	13 52 46.5	75° 17'
20	12 44 25.61	7 7 56.1	94° 08'	20	14 19 36.92	14 0 17.5	74° 59'
21	12 46 20.18	7 17 20.6	93° 83'	21	14 21 41.51	14 7 45.0	74° 00'
22	12 48 14.88	7 26 43.6	93° 58'	22	14 23 46.36	14 15 9.0	73° 40'
23	12 50 9.74	S. 7 36 5.0	93° 32'	23	14 25 51.48	S. 14 22 29.4	72° 79'
THURSDAY 22.				SATURDAY 24.			
0	12 52 4.75	S. 7 45 25.0	93° 05'	0	14 27 56.86	S. 14 29 46.1	72° 18'
1	12 53 59.91	7 54 43.3	92° 78'	1	14 30 2.51	14 36 59.2	71° 55'
2	12 55 55.23	8 4 0.0	92° 51'	2	14 32 8.43	14 44 8.5	70° 92'
3	12 57 50.70	8 13 15.1	92° 22'	3	14 34 14.63	14 51 14.0	70° 28'
4	12 59 46.34	8 22 28.4	91° 93'	4	14 36 21.09	14 58 15.7	69° 63'
5	13 1 42.15	8 31 40.0	91° 64'	5	14 38 27.83	15 5 13.4	68° 97'
6	13 3 38.13	8 40 49.9	91° 34'	6	14 40 34.85	15 12 7.3	68° 30'
7	13 5 34.27	8 49 57.9	91° 03'	7	14 42 42.13	15 18 57.1	67° 63'
8	13 7 30.59	8 59 4.0	90° 71'	8	14 44 49.70	15 25 42.9	66° 94'
9	13 9 27.09	9 8 8.3	90° 39'	9	14 46 57.54	15 32 24.5	66° 25'
10	13 11 23.77	9 17 10.6	90° 06'	10	14 49 5.66	15 39 2.0	65° 55'
11	13 13 20.63	9 26 11.0	89° 72'	11	14 51 14.06	15 45 35.3	64° 84'
12	13 15 17.67	9 35 9.3	89° 38'	12	14 53 22.75	15 52 4.3	64° 12'
13	13 17 14.91	9 44 5.6	89° 03'	13	14 55 31.72	15 58 29.0	63° 39'
14	13 19 12.33	9 52 59.8	88° 67'	14	14 57 40.97	16 4 49.4	62° 66'
15	13 21 9.95	10 1 51.8	88° 31'	15	14 59 50.50	16 11 5.3	61° 91'
16	13 23 7.77	10 10 41.6	87° 94'	16	15 2 0.31	16 17 16.8	61° 16'
17	13 25 5.79	10 19 29.3	87° 56'	17	15 4 10.41	16 23 23.8	60° 39'
18	13 27 4.01	10 28 14.7	87° 18'	18	15 6 20.79	16 29 46.1	59° 62'
19	13 29 2.44	10 36 57.7	86° 79'	19	15 8 31.45	16 35 23.9	58° 84'
20	13 31 1.07	10 45 38.5	86° 39'	20	15 10 42.39	16 41 16.9	58° 05'
21	13 32 59.91	10 54 16.8	85° 98'	21	15 12 53.62	16 47 5.2	57° 25'
22	13 34 58.97	11 2 52.7	85° 57'	22	15 15 5.14	16 52 48.8	56° 45'
23	13 36 58.24	11 11 26.2	85° 15'	23	15 17 16.94	16 58 27.5	55° 63'

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
<i>SUNDAY 25.</i>				<i>TUESDAY 27.</i>			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	15 19 29.01	S. 17 4 1.2	54.81	0	17 10 19.71	S. 19 38 35.5	5.67
1	15 21 41.37	17 9 30.1	53.97	1	17 12 43.82	19 39 9.5	4.48
2	15 23 54.02	17 14 53.9	53.13	2	17 15 8.10	19 39 36.4	3.29
3	15 26 6.95	17 20 12.7	52.28	3	17 17 32.55	19 39 56.2	2.10
4	15 28 20.17	17 25 26.4	51.42	4	17 19 57.16	19 40 8.8	0.90
5	15 30 33.66	17 30 34.9	50.55	5	17 22 21.94	19 40 14.1	0.31
6	15 32 47.44	17 35 38.2	49.68	6	17 24 46.86	19 40 12.3	1.52
7	15 35 1.50	17 40 36.3	48.79	7	17 27 11.94	19 40 3.1	2.73
8	15 37 15.84	17 45 29.0	47.90	8	17 29 37.16	19 39 46.8	3.95
9	15 39 30.45	17 50 16.4	46.99	9	17 32 2.52	19 39 23.1	5.17
10	15 41 45.35	17 54 58.4	46.08	10	17 34 28.02	19 38 52.1	6.39
11	15 44 0.52	17 59 34.8	45.16	11	17 36 53.66	19 38 13.7	7.61
12	15 46 15.97	18 4 5.8	44.23	12	17 39 19.42	19 37 28.0	8.84
13	15 48 31.69	18 8 31.2	43.29	13	17 41 45.30	19 36 35.0	10.07
14	15 50 47.69	18 12 50.9	42.34	14	17 44 11.31	19 35 34.5	11.30
15	15 53 3.96	18 17 5.0	41.39	15	17 46 37.42	19 34 26.7	12.54
16	15 55 20.50	18 21 13.3	40.43	16	17 49 3.65	19 33 11.5	13.77
17	15 57 37.31	18 25 15.9	39.45	17	17 51 29.98	19 31 48.9	15.01
18	15 59 54.39	18 29 12.6	38.47	18	17 53 56.41	19 30 18.8	16.25
19	16 2 11.73	18 33 3.5	37.49	19	17 56 22.93	19 28 41.3	17.49
20	16 4 29.34	18 36 48.4	36.49	20	17 58 49.54	19 26 56.4	18.73
21	16 6 47.21	18 40 27.3	35.48	21	18 1 16.24	19 25 4.0	19.97
22	16 9 5.35	18 44 0.2	34.47	22	18 3 43.02	19 23 4.2	21.21
23	16 11 23.74	S. 18 47 27.1	33.45	23	18 6 9.88	S. 19 20 56.9	22.45
<i>MONDAY 26.</i>				<i>WEDNESDAY 28.</i>			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	16 13 42.39	S. 18 50 47.8	32.43	0	18 8 36.80	S. 19 18 42.3	23.69
1	16 16 1.29	18 54 2.4	31.39	1	18 11 3.79	19 16 20.1	24.93
2	16 18 20.44	18 57 10.7	30.34	2	18 13 30.84	19 13 50.5	26.17
3	16 20 39.85	19 0 12.8	29.29	3	18 15 57.95	19 11 13.5	27.42
4	16 22 59.50	19 3 8.5	28.24	4	18 18 25.10	19 8 29.0	28.66
5	16 25 19.39	19 5 57.9	27.17	5	18 20 52.31	19 5 37.0	29.90
6	16 27 39.52	19 8 41.0	26.10	6	18 23 19.55	19 2 37.6	31.13
7	16 29 59.89	19 11 17.6	25.02	7	18 25 46.83	18 59 30.8	32.37
8	16 32 20.50	19 13 47.7	23.93	8	18 28 14.15	18 56 16.6	33.61
9	16 34 41.34	19 16 11.3	22.84	9	18 30 41.49	18 52 55.0	34.84
10	16 37 2.41	19 18 28.3	21.74	10	18 33 8.85	18 49 25.9	36.07
11	16 39 23.71	19 20 38.7	20.63	11	18 35 36.23	18 45 49.5	37.30
12	16 41 45.23	19 22 42.5	19.51	12	18 38 3.63	18 42 5.7	38.53
13	16 44 6.97	19 24 39.6	18.39	13	18 40 31.03	18 38 14.5	39.75
14	16 46 28.93	19 26 29.9	17.26	14	18 42 58.44	18 34 16.0	40.97
15	16 48 51.11	19 28 13.5	16.13	15	18 45 25.84	18 30 10.2	42.19
16	16 51 13.50	19 29 50.3	14.99	16	18 47 53.24	18 25 57.0	43.40
17	16 53 36.09	19 31 20.2	13.85	17	18 50 20.63	18 21 36.6	44.61
18	16 55 58.88	19 32 43.3	12.70	18	18 52 48.00	18 17 9.0	45.81
19	16 58 21.88	19 33 59.5	11.54	19	18 55 15.36	18 12 34.1	47.01
20	17 0 45.07	19 35 8.7	10.37	20	18 57 42.69	18 7 52.0	48.21
21	17 3 8.45	19 36 10.9	9.21	21	19 0 9.99	18 3 2.7	49.40
22	17 5 32.02	19 37 6.2	8.04	22	19 2 37.26	17 58 6.3	50.59
23	17 7 55.78	19 37 54.4	6.86	23	19 5 4.50	17 53 2.7	51.77
24	17 10 19.71	S. 19 38 35.5		24	19 7 31.69	S. 17 47 52.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
THURSDAY 29.				SATURDAY 31.			
0	19 7 31 ^{h m s} .69	S. 17 47 52 ^{o ' "} .1	52 ["] .95	0	21 3 24 ^{h m s} .99	S. 11 34 58 ^{o ' "} .0	99 ["] .72
1	19 9 58 ^{h m s} .84	17 42 34 ^{o ' "} .4	54 ["] .12	1	21 5 46 ^{h m s} .60	11 24 59 ^{o ' "} .7	100 ["] .43
2	19 12 25 ^{h m s} .94	17 37 9 ^{o ' "} .7	55 ["] .29	2	21 8 8 ^{h m s} .07	11 14 57 ^{o ' "} .1	101 ["] .13
3	19 14 52 ^{h m s} .99	17 31 38 ^{o ' "} .0	56 ["] .45	3	21 10 29 ^{h m s} .38	11 4 50 ^{o ' "} .3	101 ["] .82
4	19 17 19 ^{h m s} .98	17 25 59 ^{o ' "} .3	57 ["] .60	4	21 12 50 ^{h m s} .54	10 54 39 ^{o ' "} .3	102 ["] .50
5	19 19 46 ^{h m s} .91	17 20 13 ^{o ' "} .7	58 ["] .75	5	21 15 11 ^{h m s} .55	10 44 24 ^{o ' "} .3	103 ["] .16
6	19 22 13 ^{h m s} .78	17 14 21 ^{o ' "} .2	59 ["] .89	6	21 17 32 ^{h m s} .41	10 34 5 ^{o ' "} .4	103 ["] .81
7	19 24 40 ^{h m s} .58	17 8 21 ^{o ' "} .9	61 ["] .02	7	21 19 53 ^{h m s} .11	10 23 42 ^{o ' "} .5	104 ["] .45
8	19 27 7 ^{h m s} .31	17 2 15 ^{o ' "} .8	62 ["] .15	8	21 22 13 ^{h m s} .67	10 13 15 ^{o ' "} .8	105 ["] .08
9	19 29 33 ^{h m s} .96	16 56 2 ^{o ' "} .9	63 ["] .27	9	21 24 34 ^{h m s} .08	10 2 45 ^{o ' "} .3	105 ["] .70
10	19 32 0 ^{h m s} .53	16 49 43 ^{o ' "} .3	64 ["] .38	10	21 26 54 ^{h m s} .34	9 52 11 ^{o ' "} .1	106 ["] .30
11	19 34 27 ^{h m s} .02	16 43 17 ^{o ' "} .0	65 ["] .49	11	21 29 14 ^{h m s} .44	9 41 33 ^{o ' "} .3	106 ["] .88
12	19 36 53 ^{h m s} .43	16 36 44 ^{o ' "} .0	66 ["] .59	12	21 31 34 ^{h m s} .40	9 30 52 ^{o ' "} .0	107 ["] .46
13	19 39 19 ^{h m s} .74	16 30 4 ^{o ' "} .5	67 ["] .68	13	21 33 54 ^{h m s} .22	9 20 7 ^{o ' "} .3	108 ["] .02
14	19 41 45 ^{h m s} .96	16 23 18 ^{o ' "} .4	68 ["] .76	14	21 36 13 ^{h m s} .88	9 9 19 ^{o ' "} .1	108 ["] .57
15	19 44 12 ^{h m s} .09	16 16 25 ^{o ' "} .8	69 ["] .84	15	21 38 33 ^{h m s} .40	8 58 27 ^{o ' "} .7	109 ["] .11
16	19 46 38 ^{h m s} .11	16 9 26 ^{o ' "} .8	70 ["] .90	16	21 40 52 ^{h m s} .78	8 47 33 ^{o ' "} .1	109 ["] .63
17	19 49 4 ^{h m s} .04	16 2 21 ^{o ' "} .3	71 ["] .96	17	21 43 12 ^{h m s} .01	8 36 35 ^{o ' "} .3	110 ["] .14
18	19 51 29 ^{h m s} .86	15 55 9 ^{o ' "} .6	73 ["] .01	18	21 45 31 ^{h m s} .10	8 25 34 ^{o ' "} .4	110 ["] .64
19	19 53 55 ^{h m s} .57	15 47 51 ^{o ' "} .5	74 ["] .05	19	21 47 50 ^{h m s} .05	8 14 30 ^{o ' "} .6	111 ["] .12
20	19 56 21 ^{h m s} .17	15 40 27 ^{o ' "} .2	75 ["] .08	20	21 50 8 ^{h m s} .85	8 3 23 ^{o ' "} .9	111 ["] .60
21	19 58 46 ^{h m s} .66	15 32 56 ^{o ' "} .9	76 ["] .10	21	21 52 27 ^{h m s} .52	7 52 14 ^{o ' "} .3	112 ["] .06
22	20 1 12 ^{h m s} .04	15 25 20 ^{o ' "} .3	77 ["] .11	22	21 54 46 ^{h m s} .05	7 41 2 ^{o ' "} .0	112 ["] .50
23	20 3 37 ^{h m s} .30	S. 15 17 37 ^{o ' "} .6	78 ["] .11	23	21 57 4 ^{h m s} .44	S. 7 29 46 ^{o ' "} .9	112 ["] .94
FRIDAY 30.				SUNDAY, JAN. 1, 1865.			
0	20 6 2 ^{h m s} .43	S. 15 9 48 ^{o ' "} .9	79 ["] .10	0	21 59 22 ^{h m s} .69	S. 7 18 29 ^{o ' "} .3	
1	20 8 27 ^{h m s} .44	15 1 54 ^{o ' "} .3	80 ["] .09	PHASES OF THE MOON.			
2	20 10 52 ^{h m s} .34	14 53 53 ^{o ' "} .8	81 ["] .06				
3	20 13 17 ^{h m s} .10	14 45 47 ^{o ' "} .4	82 ["] .02				
4	20 15 41 ^{h m s} .73	14 37 35 ^{o ' "} .3	82 ["] .98				
5	20 18 6 ^{h m s} .24	14 29 17 ^{o ' "} .4	83 ["] .92				
6	20 20 30 ^{h m s} .61	14 20 53 ^{o ' "} .9	84 ["] .85	<div> <div>d h m</div> <div>) First Quarter - 5 19 33^{h m s}.7</div> <div> ○ Full Moon - - 12 19 12^{h m s}.2</div> <div> (Last Quarter - 20 17 2^{h m s}.7</div> <div> ● New Moon - - 28 9 21^{h m s}.5</div> </div>			
7	20 22 54 ^{h m s} .84	14 12 24 ^{o ' "} .8	85 ["] .77				
8	20 25 18 ^{h m s} .94	14 3 50 ^{o ' "} .1	86 ["] .68				
9	20 27 42 ^{h m s} .91	13 55 10 ^{o ' "} .0	87 ["] .59				
10	20 30 6 ^{h m s} .73	13 46 24 ^{o ' "} .5	88 ["] .48	<div> <div>d h</div> <div> (Perigee - - - - 6 10</div> <div> (Apogee - - - - 19 21</div> </div>			
11	20 32 30 ^{h m s} .41	13 37 33 ^{o ' "} .7	89 ["] .36				
12	20 34 53 ^{h m s} .95	13 28 37 ^{o ' "} .5	90 ["] .22				
13	20 37 17 ^{h m s} .35	13 19 36 ^{o ' "} .2	91 ["] .08				
14	20 39 40 ^{h m s} .60	13 10 29 ^{o ' "} .7	91 ["] .92				
15	20 42 3 ^{h m s} .71	13 1 18 ^{o ' "} .2	92 ["] .75				
16	20 44 26 ^{h m s} .67	12 52 1 ^{o ' "} .7	93 ["] .57				
17	20 46 49 ^{h m s} .48	12 42 40 ^{o ' "} .2	94 ["] .38				
18	20 49 12 ^{h m s} .15	12 33 13 ^{o ' "} .9	95 ["] .18				
19	20 51 34 ^{h m s} .66	12 23 42 ^{o ' "} .8	95 ["] .97				
20	20 53 57 ^{h m s} .03	12 14 7 ^{o ' "} .0	96 ["] .74				
21	20 56 19 ^{h m s} .25	12 4 26 ^{o ' "} .6	97 ["] .51				
22	20 58 41 ^{h m s} .31	11 54 41 ^{o ' "} .5	98 ["] .26				
23	21 1 3 ^{h m s} .22	11 44 52 ^{o ' "} .0	99 ["] .00				
24	21 3 24 ^{h m s} .99	S. 11 34 58 ^{o ' "} .0					

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	SUN W.	27 40 43	2782	29 15 35	2772	30 50 39	2764	32 25 54	2756
	Fomalhaut E.	59 36 47	3085	58 8 19	3103	56 40 13	3124	55 12 33	3147
	α Pegasi E.	74 3 30	2607	72 24 45	2604	70 45 56	2601	69 7 2	2599
2	SUN W.	40 24 39	2721	42 0 51	2715	43 37 11	2710	45 13 38	2704
	Fomalhaut E.	48 2 44	3326	46 39 2	3377	45 16 19	3434	43 54 41	3499
	α Pegasi E.	60 52 12	2600	59 13 17	2603	57 34 26	2607	55 55 41	2612
	α Arietis E.	103 49 22	2447	102 6 54	2441	100 24 17	2435	98 41 32	2430
3	SUN W.	53 17 39	2680	54 54 45	2676	56 31 57	2672	58 9 14	2669
	Venus W.	19 41 13	2999	21 11 27	2961	22 42 29	2930	24 14 9	2905
	Fomalhaut E.	37 27 48	3985	36 15 53	4128	35 6 18	4292	33 59 18	4481
	α Pegasi E.	47 44 19	2661	46 6 46	2676	44 29 34	2695	42 52 47	2716
	α Arietis E.	90 6 5	2408	88 22 41	2405	86 39 13	2402	84 55 41	2398
4	SUN W.	66 16 47	2654	67 54 29	2651	69 32 15	2648	71 10 5	2646
	Venus W.	31 59 15	2822	33 33 14	2811	35 7 28	2802	36 41 53	2794
	α Pegasi E.	34 57 28	2884	33 24 49	2937	31 53 17	3000	30 23 4	3073
	α Arietis E.	76 17 4	2388	74 33 12	2387	72 49 19	2386	71 5 24	2385
	Mars E.	109 1 9	2223	107 13 16	2221	105 25 20	2219	103 37 20	2217
	Aldebaran E.	109 25 1	2328	107 39 43	2326	105 54 22	2324	104 8 57	2322
5	SUN W.	79 19 54	2636	80 58 0	2635	82 36 7	2634	84 14 16	2632
	Venus W.	44 36 26	2763	46 11 43	2758	47 47 6	2753	49 22 35	2750
	α Aquilæ W.	39 47 11	3408	41 9 18	3332	42 32 52	3264	43 57 46	3202
	α Arietis E.	62 25 46	2387	60 41 53	2389	58 58 2	2390	57 14 13	2393
	Mars E.	94 36 41	2209	92 48 27	2207	91 0 10	2206	89 11 52	2206
	Aldebaran E.	95 21 8	2313	93 35 27	2311	91 49 44	2310	90 3 59	2308
6	SUN W.	92 25 23	2628	94 3 40	2628	95 41 57	2627	97 20 15	2627
	Venus W.	57 21 5	2736	58 56 57	2734	60 32 52	2732	62 8 49	2731
	α Aquilæ W.	51 18 13	2981	52 48 50	2949	54 20 7	2920	55 52 0	2894
	α Arietis E.	48 36 16	2412	46 52 59	2419	45 9 52	2426	43 26 54	2435
	Mars E.	80 10 6	2203	78 21 43	2202	76 33 19	2203	74 44 56	2203
	Aldebaran E.	81 14 49	2304	79 28 56	2304	77 43 2	2304	75 57 8	2303
7	SUN W.	105 31 45	2629	107 10 1	2629	108 48 17	2629	110 26 32	2631
	Venus W.	70 8 56	2727	71 45 0	2727	73 21 4	2727	74 57 8	2728
	α Aquilæ W.	63 38 45	2798	65 13 15	2785	66 48 3	2773	68 23 7	2762
	Fomalhaut W.	37 36 4	3793	38 51 13	3681	40 8 20	3583	41 27 13	3496
	Mars E.	65 43 9	2206	63 54 51	2208	62 6 35	2209	60 18 21	2211
	Aldebaran E.	67 7 34	2304	65 21 40	2305	63 35 48	2305	61 49 56	2306
	Pollux E.	109 31 51	2398	107 48 14	2396	106 4 34	2395	104 20 52	2394
8	SUN W.	118 37 18	2638	120 15 21	2641	121 53 20	2643	123 31 16	2646
	Venus W.	82 57 14	2732	84 33 11	2734	86 9 5	2736	87 44 57	2739
	α Aquilæ W.	76 21 26	2746	77 57 31	2743	79 33 40	2740	81 9 54	2738
	Fomalhaut W.	48 22 43	3186	49 49 9	3143	51 16 27	3104	52 44 31	3070
	α Pegasi W.	28 59 44	3056	30 28 47	2985	31 59 19	2923	33 31 9	2870
	Mars E.	51 17 55	2223	49 30 1	2226	47 42 13	2229	45 54 29	2234
	Aldebaran E.	53 7 5	2314	51 15 26	2317	49 29 51	2318	47 44 18	2321
	Pollux E.	95 42 17	2396	93 58 36	2397	92 14 57	2398	90 31 20	2400
9	Venus W.	95 43 21	2755	97 18 48	2758	98 54 11	2763	100 29 27	2767

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	SUN W.	34 1 19 2748		35 36 55 2741		37 12 41 2734		38 48 36 2728	
	Fomalhaut E.	53 45 21 3174		52 18 41 3206		50 52 39 3441		49 27 18 3281	
	α Pegasi E.	67 28 6 2597		65 49 7 2597		64 10 8 2597		62 31 9 2599	
2	SUN W.	46 50 13 2699		48 26 55 2694		50 3 43 2689		51 40 38 2684	
	Fomalhaut E.	42 34 16 3573		41 15 12 3657		39 57 39 3752		38 41 47 3861	
	α Pegasi E.	54 17 2 2619		52 38 33 2627		51 0 15 2636		49 22 9 2648	
	α Arietis E.	96 58 40 2425		95 15 41 2420		93 32 35 2415		91 49 22 2412	
3	SUN W.	59 46 35 2665		61 24 2 2662		63 1 33 2659		64 39 8 2656	
	Venus W.	25 46 22 2883		27 19 2 2864		28 52 7 2848		30 25 32 2834	
	Fomalhaut E.	32 55 9 4700		31 54 10 4956		30 56 40 5257		30 3 1 5612	
	α Pegasi E.	41 16 28 2740		39 40 41 2768		38 5 31 2801		36 31 5 2839	
	α Arietis E.	83 12 4 2396		81 28 23 2394		79 44 40 2391		78 0 53 2390	
4	SUN W.	72 47 57 2644		74 25 52 2641		76 3 51 2640		77 41 51 2638	
	Venus W.	38 16 29 2786		39 51 16 2779		41 26 11 2772		43 1 15 2767	
	α Pegasi E.	28 54 21 3160		27 27 24 3266		26 2 33 3394		24 40 10 3549	
	α Arietis E.	69 21 28 2385		67 37 32 2385		65 53 36 2386		64 9 41 2386	
	Mars E.	101 49 18 2215		100 1 12 2213		98 13 4 2212		96 24 54 2210	
	Aldebaran E.	102 23 29 2319		100 37 58 2317		98 52 24 2315		97 6 47 2314	
5	SUN W.	85 52 27 2631		87 30 39 2631		89 8 52 2630		90 47 7 2629	
	Venus W.	50 58 9 2746		52 33 48 2744		54 9 30 2741		55 45 16 2738	
	α Aquilæ W.	45 23 53 3148		46 51 4 3099		48 19 15 3055		49 48 20 3016	
	α Arietis E.	55 30 28 2396		53 46 47 2399		52 3 11 2403		50 19 40 2407	
	Mars E.	87 23 33 2204		85 35 12 2204		83 46 51 2204		81 58 29 2203	
	Aldebaran E.	88 18 11 2308		86 32 23 2307		84 46 33 2306		83 0 42 2304	
6	SUN W.	98 58 33 2627		100 36 51 2627		102 15 9 2627		103 53 27 2627	
	Venus W.	63 44 48 2730		65 20 48 2729		66 56 50 2728		68 32 53 2728	
	α Aquilæ W.	57 24 27 2872		58 57 23 2850		60 30 47 2831		62 4 35 2814	
	α Arietis E.	41 44 9 2444		40 1 37 2455		38 19 21 2468		36 37 23 2484	
	Mars E.	72 56 33 2204		71 8 11 2204		69 19 49 2204		67 31 28 2206	
	Aldebaran E.	74 11 13 2303		72 25 18 2303		70 39 23 2303		68 53 28 2304	
7	SUN W.	112 4 45 2632		113 42 56 2633		115 21 6 2635		116 59 13 2637	
	Venus W.	76 33 11 2728		78 9 14 2729		79 45 16 2730		81 21 16 2731	
	α Aquilæ W.	69 58 25 2752		71 33 56 2744		73 9 37 2737		74 45 28 2731	
	Fomalhaut W.	42 47 42 3419		44 9 37 3350		45 32 51 3289		46 57 15 3235	
	Mars E.	58 30 9 2213		56 42 1 2215		54 53 55 2217		53 5 53 2220	
	Aldebaran E.	160 4 6 2308		58 18 18 2309		56 32 31 2311		54 46 47 2312	
	Pollux E.	102 37 9 2394		100 53 26 2394		99 9 42 2394		97 25 59 2395	
8	SUN W.	125 9 8 2649		126 46 56 2653		128 24 39 2656		130 2 18 2660	
	Venus W.	89 20 45 2741		90 56 30 2744		92 32 11 2747		94 7 48 2750	
	α Aquilæ W.	82 46 10 2718		84 22 26 2717		85 58 43 2718		87 34 59 2721	
	Fomalhaut W.	54 13 18 3039		55 42 42 3012		57 12 40 2987		58 43 9 2965	
	α Pegasi W.	35 4 7 2825		36 38 3 2787		38 12 48 2754		39 48 16 2726	
	Mars E.	44 6 52 2238		42 19 21 2243		40 31 58 2248		38 44 42 2254	
	Aldebaran E.	45 58 50 2324		44 13 26 2328		42 28 7 2331		40 42 53 2335	
	Pollux E.	88 47 46 2403		87 4 16 2406		85 20 50 2409		83 37 28 2412	
9	Venus W.	102 4 38 2772		103 39 42 2778		105 14 38 2783		106 49 28 2790	

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LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
9	α Aquilæ W.	89 11 11	2723	90 47 20	2727	92 23 24	2732	93 59 22	2738
	Fomalhaut W.	60 14 6	2946	61 45 26	2930	63 17 7	2915	64 49 7	2902
	α Pegasi W.	41 24 22	2702	43 0 59	2681	44 38 4	2664	46 15 32	2649
	Mars E.	36 57 35	2261	35 10 38	2268	33 23 52	2276	31 37 18	2286
	Aldebaran E.	38 57 45	2339	37 12 43	2344	35 27 48	2349	33 43 0	2355
	Pollux E.	81 54 11	2417	80 11 0	2422	78 27 56	2426	76 44 58	2431
10	Venus W.	108 24 9	2796	109 58 42	2803	111 33 6	2810	113 7 21	2818
	Fomalhaut W.	72 32 27	2863	74 5 33	2860	75 38 43	2859	77 11 55	2858
	α Pegasi W.	54 27 1	2604	56 5 51	2600	57 44 46	2596	59 23 46	2594
	Pollux E.	68 12 13	2465	66 30 10	2473	64 48 19	2482	63 6 40	2492
	Regulus E.	104 35 41	2379	102 51 36	2384	101 7 39	2389	99 23 49	2396
11	Fomalhaut W.	84 57 39	2871	86 30 35	2878	88 3 22	2884	89 36 1	2892
	α Pegasi W.	67 38 57	2600	69 17 52	2603	70 56 43	2607	72 35 28	2612
	α Arietis W.	24 15 45	2780	25 50 39	2745	27 26 19	2718	29 2 35	2696
	Pollux E.	54 42 5	2550	53 2 1	2564	51 22 16	2579	49 42 52	2595
	Regulus E.	90 46 56	2429	89 4 3	2437	87 21 21	2445	85 38 51	2453
12	Fomalhaut W.	97 16 15	2948	98 47 33	2962	100 18 34	2977	101 49 15	2993
	α Pegasi W.	80 47 14	2647	82 25 5	2655	84 2 45	2664	85 40 13	2675
	α Arietis W.	37 9 12	2648	38 47 2	2646	40 24 55	2646	42 2 48	2647
	Pollux E.	41 31 57	2697	39 55 13	2722	38 19 3	2750	36 43 29	2781
	Regulus E.	77 9 25	2500	75 28 11	2510	73 47 12	2521	72 6 28	2531
13	α Pegasi W.	93 44 3	2729	95 20 4	2742	96 55 48	2756	98 31 14	2769
	α Arietis W.	50 11 17	2669	51 48 38	2676	53 25 50	2684	55 2 52	2692
	Mars W.	20 4 59	2580	21 44 22	2576	23 23 50	2575	25 3 19	2578
	Pollux E.	28 57 22	2998	27 27 7	3061	25 58 10	3134	24 30 42	3219
	Regulus E.	63 46 36	2589	62 7 26	2601	60 28 33	2614	58 49 57	2627
14	α Arietis W.	63 5 4	2740	64 40 51	2750	66 16 24	2761	67 51 43	2772
	Mars W.	33 19 13	2611	34 57 53	2620	36 36 21	2629	38 14 36	2640
	Aldebaran W.	29 27 4	2685	31 4 4	2695	32 40 50	2706	34 17 22	2717
	Regulus E.	50 41 23	2694	49 4 35	2708	47 28 6	2723	45 51 57	2738
	Spica E.	104 17 16	2663	102 39 46	2675	101 2 32	2688	99 25 36	2700
	Saturn E.	110 26 56	2699	108 50 15	2711	107 13 50	2725	105 37 43	2737
15	α Arietis W.	75 44 38	2830	77 18 27	2841	78 52 1	2853	80 25 20	2866
	Mars W.	46 22 13	2695	47 58 59	2707	49 35 30	2718	51 11 46	2730
	Aldebaran W.	42 16 13	2776	43 51 13	2788	45 25 57	2800	47 0 25	2811
	Regulus E.	37 56 5	2815	36 21 57	2832	34 48 10	2849	33 14 45	2866
	Spica E.	91 25 7	2763	89 49 51	2777	88 14 53	2789	86 40 10	2801
	Saturn E.	97 41 14	2800	96 6 46	2812	94 32 34	2825	92 58 39	2838
16	α Arietis W.	88 8 5	2924	89 39 53	2936	91 11 26	2948	92 42 44	2959
	Mars W.	59 9 11	2788	60 43 54	2799	62 18 23	2811	63 52 36	2821
	Aldebaran W.	54 48 56	2870	56 21 53	2882	57 54 35	2893	59 27 3	2904
	Pollux W.	16 31 57	4228	17 39 56	4025	18 51 12	3866	20 5 7	3741
	Spica E.	78 50 40	2862	77 17 32	2874	75 44 40	2885	74 12 2	2897
	Saturn E.	85 13 2	2898	83 40 41	2910	82 8 35	2922	80 36 44	2933
17	Mars W.	71 40 14	2874	73 13 6	2884	74 45 45	2894	76 18 12	2904
	Aldebaran W.	67 5 59	2955	68 37 8	2965	70 8 4	2974	71 38 49	2984

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Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
9	α Aquilæ W.	95 35 12	2744	97 10 54	2752	98 46 25	2760	100 21 45	2770
	Fomalhaut W.	66 21 24	2891	67 53 54	2882	69 26 36	2874	70 59 28	2868
	α Pegasi W.	47 53 21	2636	49 31 27	2626	51 9 47	2617	52 48 19	2610
	Mars E.	29 50 58	2297	28 4 53	2309	26 19 7	2323	24 33 39	2339
	Aldebaran E.	31 58 20	2362	30 13 50	2368	28 29 29	2375	26 45 19	2384
	Pollux E.	75 2 7	2437	73 19 25	2443	71 36 51	2450	69 54 27	2457
10	Venus W.	114 41 26	2826	116 15 20	2834	117 49 4	2843	119 22 36	2852
	Fomalhaut W.	78 45 8	2858	80 18 20	2860	81 51 31	2863	83 24 37	2866
	α Pegasi W.	61 2 49	2594	62 41 52	2594	64 20 56	2595	65 59 58	2597
	Pollux E.	61 25 15	2502	59 44 4	2512	58 3 8	2524	56 22 28	2536
	Regulus E.	97 40 8	2401	95 56 35	2408	94 13 12	2415	92 29 59	2422
11	Fomalhaut W.	91 8 30	2901	92 40 47	2912	94 12 51	2923	95 44 41	2935
	α Pegasi W.	74 14 6	2618	75 52 37	2624	77 30 59	2631	79 9 11	2638
	α Arietis W.	30 39 20	2680	32 16 27	2667	33 53 51	2658	35 31 27	2652
	Pollux E.	48 3 50	2612	46 25 12	2631	44 46 59	2651	43 9 13	2673
	Regulus E.	83 56 32	2462	82 14 26	2471	80 32 32	2481	78 50 52	2490
12	Fomalhaut W.	103 19 36	3010	104 49 36	3029	106 19 13	3049	107 48 25	3069
	α Pegasi W.	87 17 27	2684	88 54 28	2695	90 31 15	2706	92 7 47	2718
	α Arietis W.	43 40 39	2649	45 18 27	2652	46 56 11	2657	48 33 48	2663
	Pollux E.	35 8 37	2815	33 34 29	2853	32 1 10	2896	30 28 46	2944
	Regulus E.	70 25 58	2543	68 45 44	2554	67 5 46	2565	65 26 3	2577
13	α Pegasi W.	100 6 23	2782	101 41 14	2796	103 15 47	2811	104 50 0	2826
	α Arietis W.	56 39 42	2700	58 16 22	2710	59 52 49	2719	61 29 3	2729
	Mars W.	26 42 45	2582	28 22 5	2587	30 1 18	2594	31 40 21	2602
	Pollux E.	23 4 55	3321	21 41 8	3444	20 19 41	3594	19 0 59	3780
	Regulus E.	57 11 38	2640	55 33 37	2653	53 55 54	2667	52 18 30	2680
14	α Arietis W.	69 26 48	2783	71 1 38	2795	72 36 13	2806	74 10 33	2818
	Mars W.	39 52 37	2651	41 30 23	2661	43 7 55	2673	44 45 11	2684
	Aldebaran W.	35 53 39	2729	37 29 40	2740	39 5 27	2752	40 40 58	2764
	Regulus E.	44 16 7	2752	42 40 36	2767	41 5 25	2783	39 30 35	2798
	Spica E.	97 48 56	2713	96 12 33	2726	94 36 28	2738	93 0 39	2751
	Saturn E.	104 1 52	2749	102 26 17	2762	100 50 59	2775	99 15 58	2788
15	α Arietis W.	81 58 23	2877	83 31 12	2889	85 3 45	2901	86 36 3	2913
	Mars W.	52 47 46	2742	54 23 30	2753	55 58 59	2765	57 34 12	2776
	Aldebaran W.	48 34 38	2824	50 8 35	2835	51 42 17	2847	53 15 44	2859
	Regulus E.	31 41 43	2884	30 9 4	2904	28 36 51	2924	27 5 3	2946
	Spica E.	85 5 44	2814	83 31 34	2827	81 57 41	2838	80 24 2	2851
	Saturn E.	91 25 0	2850	89 51 37	2862	88 18 29	2875	86 45 38	2887
16	α Arietis W.	94 13 48	2970	95 44 38	2981	97 15 14	2993	98 45 36	3004
	Mars W.	65 26 36	2833	67 0 21	2844	68 33 52	2854	70 7 10	2865
	Aldebaran W.	60 59 17	2914	62 31 18	2925	64 3 5	2936	65 34 38	2946
	Pollux W.	21 21 10	3643	22 38 58	3566	23 58 10	3503	25 18 31	3451
	Spica E.	72 39 39	2908	71 7 30	2919	69 35 35	2929	68 3 53	2939
	Saturn E.	79 5 7	2944	77 33 44	2955	76 2 35	2966	74 31 39	2977
17	Mars W.	77 50 26	2912	79 22 30	2921	80 54 22	2929	82 26 4	2937
	Aldebaran W.	73 9 22	2992	74 39 45	3001	76 9 57	3008	77 40 0	3016

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
17	Pollux W.	26 39 50	3410	28 1 55	3376	29 24 39	3348	30 47 55	3325
	Spica E.	66 32 24	2950	65 1 8	2959	63 30 4	2968	61 59 11	2978
	Saturn E.	73 0 57	2986	71 30 27	2996	70 0 9	3006	68 30 3	3015
	Sun E.	130 21 17	3344	128 57 56	3353	127 34 46	3364	126 11 48	3373
18	Mars W.	83 57 36	2944	85 28 59	2952	87 0 12	2959	88 31 16	2965
	Aldebaran W.	79 9 53	3023	80 39 37	3030	82 9 13	3037	83 38 40	3043
	Pollux W.	37 49 38	3256	39 14 41	3248	40 39 54	3241	42 5 14	3236
	Spica E.	54 27 33	3018	52 57 42	3025	51 28 0	3031	49 58 26	3038
	Saturn E.	61 2 19	3056	59 33 16	3063	58 4 21	3070	56 35 35	3077
	Sun E.	119 19 32	3416	117 57 33	3423	116 35 42	3430	115 13 59	3437
19	Mars W.	96 4 46	2992	97 35 9	2996	99 5 27	2999	100 35 41	3003
	Aldebaran W.	91 4 16	3066	92 33 7	3070	94 1 53	3073	95 30 36	3075
	Pollux W.	49 13 20	3216	50 39 10	3213	52 5 4	3210	53 31 1	3207
	Spica E.	42 32 19	3061	41 3 22	3065	39 34 30	3068	38 5 41	3070
	Saturn E.	49 13 33	3102	47 45 26	3106	46 17 24	3110	44 49 27	3113
	Sun E.	108 27 4	3462	107 5 57	3466	105 44 55	3469	104 23 56	3471
20	Mars W.	108 6 1	3011	109 36 0	3012	111 5 58	3012	112 35 56	3011
	Pollux W.	60 41 40	3191	62 8 0	3188	63 34 23	3184	65 0 51	3179
	Regulus W.	23 39 48	3185	25 6 15	3174	26 32 55	3163	27 59 49	3153
	Spica E.	30 42 10	3076	29 13 31	3075	27 44 51	3075	26 16 11	3073
	Saturn E.	37 30 27	3123	36 2 45	3124	34 35 4	3124	33 7 24	3124
	Sun E.	97 39 33	3477	96 18 43	3476	94 57 52	3475	93 37 0	3474
21	Pollux W.	72 14 33	3155	73 41 36	3149	75 8 46	3143	76 36 4	3136
	Regulus W.	35 17 0	3110	36 44 57	3103	38 13 3	3094	39 41 20	3087
	Sun E.	86 52 4	3458	85 30 53	3453	84 9 36	3448	82 48 14	3442
22	Pollux W.	83 54 42	3098	85 22 54	3089	86 51 17	3081	88 19 50	3071
	Regulus W.	47 5 19	3042	48 34 40	3031	50 4 14	3021	51 34 0	3011
	Sun E.	75 59 32	3406	74 37 22	3397	73 15 2	3387	71 52 31	3378
23	Pollux W.	95 45 37	3020	97 15 25	3009	98 45 26	2998	100 15 41	2987
	Regulus W.	59 6 13	2954	60 37 23	2942	62 8 48	2929	63 40 30	2917
	Sun E.	64 57 0	3323	63 33 15	3311	62 9 16	3299	60 45 3	3286
24	Regulus W.	71 23 8	2849	72 56 33	2835	74 30 16	2821	76 4 17	2805
	Spica W.	17 31 4	2832	19 4 51	2817	20 38 57	2802	22 13 22	2788
	Sun E.	53 40 5	3218	52 14 17	3203	50 48 11	3188	49 21 48	3174
25	Regulus W.	83 59 17	2730	85 35 17	2715	87 11 37	2700	88 48 17	2684
	Spica W.	30 10 17	2713	31 46 40	2698	33 23 23	2682	35 0 27	2666
	Saturn W.	23 18 26	2778	24 53 23	2757	26 28 47	2738	28 4 36	2719
	Sun E.	42 5 30	3100	40 37 21	3085	39 8 53	3071	37 40 8	3057
30	Sun W.	21 51 2	2639	23 29 4	2623	25 7 27	2610	26 46 9	2599
	α Pegasi E.	51 49 35	2514	50 8 41	2524	48 28 2	2537	46 47 40	2553
	α Arietis E.	94 23 2	2295	92 36 55	2290	90 50 40	2286	89 4 20	2282
31	Sun W.	35 2 47	2563	36 42 33	2559	38 22 24	2556	40 2 19	2553
	α Pegasi E.	38 32 42	2684	36 55 40	2724	35 19 32	2772	33 44 27	2828
	α Arietis E.	80 11 34	2272	78 24 54	2272	76 38 14	2273	74 51 35	2274
	Mars E.	106 30 6	2202	104 41 41	2201	102 53 15	2200	101 4 48	2201

MEAN TIME.												
LUNAR DISTANCES.												
Day of the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.		
17	Pollux	W.	32 11 38	3306	33 35 43	3289	35 0 7	3276	36 24 46	3265		
	Spica	E.	60 28 31	2986	58 58 1	2995	57 27 42	3002	55 57 32	3011		
	Saturn	E.	67 0 9	3024	65 30 26	3033	64 0 54	3041	62 31 32	3048		
	SUN	E.	124 49 1	3382	123 26 24	3391	122 3 57	3400	120 41 40	3408		
18	Mars	W.	90 2 12	2971	91 33 1	2977	93 3 42	2982	94 34 17	2987		
	Aldebaran	W.	85 8 0	3048	86 37 13	3053	88 6 20	3058	89 35 21	3063		
	Pollux	W.	43 30 41	3231	44 56 13	3226	46 21 51	3222	47 47 34	3219		
	Spica	E.	48 29 0	3043	46 59 40	3048	45 30 27	3053	44 1 20	3058		
	Saturn	E.	55 6 57	3083	53 38 26	3088	52 10 2	3094	50 41 45	3098		
	SUN	E.	113 52 24	3442	112 30 55	3448	111 9 33	3453	109 48 16	3457		
19	Mars	W.	102 5 50	3005	103 35 57	3008	105 6 0	3009	106 36 1	3010		
	Aldebaran	W.	96 59 16	3077	98 27 54	3079	99 56 29	3080	101 25 3	3080		
	Pollux	W.	54 57 2	3204	56 23 6	3201	57 49 14	3198	59 15 25	3195		
	Spica	E.	36 36 55	3072	35 8 11	3074	33 39 30	3075	32 10 50	3075		
	Saturn	E.	43 21 33	3116	41 53 43	3119	40 25 56	3120	38 58 10	3122		
	SUN	E.	103 3 0	3473	101 42 6	3475	100 21 14	3476	99 0 23	3477		
20	Mars	W.	114 5 55	3011	115 35 54	3009	117 5 56	3007	118 36 0	3005		
	Pollux	W.	66 27 25	3176	67 54 3	3171	69 20 47	3168	70 47 37	3161		
	Regulus	W.	29 26 54	3144	30 54 10	3135	32 21 37	3127	33 49 14	3119		
	Spica	E.	24 47 28	3071	23 18 43	3069	21 49 56	3066	20 21 5	3063		
	Saturn	E.	31 39 44	3125	30 12 5	3124	28 44 25	3124	27 16 45	3124		
	SUN	E.	92 16 7	3472	90 55 12	3469	89 34 13	3465	88 13 10	3462		
21	Pollux	W.	78 3 30	3129	79 31 4	3122	80 58 47	3114	82 26 39	3105		
	Regulus	W.	41 9 46	3078	42 38 23	3069	44 7 10	3060	45 36 9	3051		
	SUN	E.	81 26 45	3436	80 5 9	3429	78 43 25	3422	77 21 33	3414		
22	Pollux	W.	89 48 35	3061	91 17 32	3051	92 46 41	3041	94 16 3	3031		
	Regulus	W.	53 3 59	3001	54 34 11	2989	56 4 38	2978	57 35 18	2966		
	SUN	E.	70 29 49	3367	69 6 55	3357	67 43 50	3346	66 20 32	3334		
23	Pollux	W.	101 46 10	2975	103 16 54	2964	104 47 52	2952	106 19 5	2940		
	Regulus	W.	65 12 27	2903	66 44 42	2890	68 17 13	2877	69 50 2	2863		
	SUN	E.	59 20 35	3272	57 55 51	3259	56 30 52	3246	55 5 37	3231		
24	Regulus	W.	77 38 38	2791	79 13 18	2776	80 48 18	2760	82 23 38	2746		
	Spica	W.	23 48 6	2773	25 23 9	2758	26 58 32	2744	28 34 14	2728		
	SUN	E.	47 55 8	3160	46 28 11	3144	45 0 55	3130	43 33 22	3115		
25	Regulus	W.	90 25 18	2669	92 2 40	2653	93 40 23	2638	95 18 26	2623		
	Spica	W.	36 37 52	2652	38 15 37	2636	39 53 43	2620	41 32 11	2605		
	Saturn	W.	29 40 50	2701	31 17 29	2683	32 54 31	2665	34 31 58	2649		
	SUN	E.	36 11 6	3043	34 41 46	3029	33 12 9	3016	31 42 16	3003		
30	SUN	W.	28 25 6	2589	30 4 16	2581	31 43 37	2574	33 23 8	2568		
	α Pegasi	E.	45 7 41	2571	43 28 6	2593	41 49 1	2619	40 10 31	2649		
	α Arietis	E.	87 17 54	2279	85 31 24	2276	83 44 50	2274	81 58 13	2273		
31	SUN	W.	41 42 18	2552	43 22 19	2551	45 2 21	2551	46 42 24	2551		
	α Pegasi	E.	32 10 36	2894	30 38 10	2973	29 7 23	3067	27 38 33	3179		
	α Arietis	E.	73 4 57	2275	71 18 20	2278	69 31 48	2280	67 45 19	2283		
	Mars	E.	99 16 21	2202	97 27 56	2202	95 39 31	2204	93 51 9	2205		

Day of the Month.	Amr's Day Numbers—For correcting the Places of the Fixed Stars.				
	At Mean Midnight,				
	Logarithms of				Value of L
	E	F	G	H	
1	1°49659	1°64570	0°36486	1°51521	22°060
2	1°49223	1°64687	0°36546	1°51545	22°190
3	1°48780	1°64799	0°36606	1°51568	22°331
4	1°48329	1°64905	0°36666	1°51590	22°482
5	1°47871	1°65004	0°36727	1°51610	22°643
6	1°47406	1°65097	0°36788	1°51630	22°815
7	1°46933	1°65183	0°36849	1°51649	22°996
8	1°46453	1°65263	0°36909	1°51668	23°186
9	1°45966	1°65337	0°36970	1°51686	23°385
10	1°45471	1°65405	0°37031	1°51703	23°594
11	1°44969	1°65468	0°37092	1°51719	23°812
12	1°44459	1°65524	0°37153	1°51734	24°041
13	1°43941	1°65573	0°37215	1°51748	24°279
14	1°43416	1°65616	0°37277	1°51761	24°535
15	1°42883	1°65653	0°37339	1°51774	24°780
16	1°42343	1°65684	0°37401	1°51786	25°044
17	1°41796	1°65710	0°37463	1°51796	25°317
18	1°41241	1°65729	0°37525	1°51806	25°599
19	1°40678	1°65742	0°37587	1°51815	25°890
20	1°40106	1°65748	0°37648	1°51822	26°191
21	1°39527	1°65748	0°37710	1°51829	26°500
22	1°38940	1°65742	0°37772	1°51835	26°818
23	1°38345	1°65730	0°37833	1°51840	27°145
24	1°37742	1°65711	0°37894	1°51844	27°480
25	1°37131	1°65686	0°37955	1°51847	27°823
26	1°36512	1°65657	0°38016	1°51850	28°174
27	1°35886	1°65620	0°38077	1°51851	28°535
28	1°35252	1°65577	0°38138	1°51851	28°902
29	1°34610	1°65527	0°38198	1°51851	29°275
30	1°33960	1°65472	0°38258	1°51850	29°657
31	1°33302	1°65411	0°38318	1°51848	30°046
32	1°32637	1°65343	0°38377	1°51845	30°443

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Mean Time of Transit of the First Point of Aries.	Mean Equinoctial Time, adding 0 ^d .238545. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	+0.8045	+1.2839	+0.0479	+0.8893	^h 7 ^m 16 ^s 25.66	254	335	.9172
2	0.7826	1.2866	0.0492	0.8903	7 12 29.75	255	336	.9199
3	0.7594	1.2892	0.0504	0.8912	7 8 33.84	256	337	.9227
4	+0.7347	+1.2916	+0.0516	+0.8922	7 4 37.93	257	338	.9254
5	0.7084	1.2938	0.0529	0.8930	7 0 42.02	258	339	.9282
6	0.6803	1.2960	0.0541	0.8939	6 56 46.11	259	340	.9309
7	+0.6500	+1.2979	+0.0554	+0.8947	6 52 50.20	260	341	.9336
8	0.6173	1.2997	0.0566	0.8955	6 48 54.29	261	342	.9364
9	0.5818	1.3014	0.0579	0.8962	6 44 58.38	262	343	.9391
10	+0.5430	+1.3029	+0.0592	+0.8969	6 41 2.47	263	344	.9418
11	0.5002	1.3043	0.0604	0.8976	6 37 6.55	264	345	.9446
12	0.4525	1.3056	0.0617	0.8982	6 33 10.64	265	346	.9473
13	+0.3989	+1.3067	+0.0629	+0.8988	6 29 14.73	266	347	.9501
14	0.3374	1.3077	0.0642	0.8994	6 25 18.82	267	348	.9528
15	0.2657	1.3085	0.0654	0.8999	6 21 22.91	268	349	.9555
16	+0.1795	+1.3092	+0.0667	+0.9004	6 17 27.00	269	350	.9583
17	0.0716	1.3097	0.0680	0.9008	6 13 31.08	270	351	.9610
18	9.9276	1.3102	0.0692	0.9012	6 9 35.17	271	352	.9637
19	+9.7103	+1.3104	+0.0705	+0.9016	6 5 39.26	272	353	.9665
20	+9.2549	1.3106	0.0717	0.9019	6 1 43.35	273	354	.9692
21	-9.1866	1.3106	0.0730	0.9022	5 57 47.44	274	355	.9720
22	-9.6877	+1.3104	+0.0742	+0.9025	5 53 51.53	275	356	.9747
23	9.9142	1.3102	0.0754	0.9026	5 49 55.61	276	357	.9774
24	0.0622	1.3098	0.0766	0.9028	5 45 59.70	277	358	.9802
25	-0.1723	+1.3092	+0.0779	+0.9029	5 42 3.79	278	359	.9829
26	0.2599	1.3085	0.0791	0.9030	5 38 7.88	279	360	.9856
27	0.3327	1.3077	0.0803	0.9031	5 34 11.97	280	361	.9884
28	-0.3949	+1.3068	+0.0815	+0.9031	5 30 16.06	281	362	.9911
29	0.4492	1.3057	0.0827	0.9031	5 26 20.15	282	363	.9939
30	0.4973	1.3044	0.0839	0.9031	5 22 24.24	283	364	.9966
31	0.5405	1.3030	0.0851	0.9030	5 18 28.33	284	365	.9993
32	-0.5796	+1.3015	+0.0863	+0.9028	5 14 32.41	285	366	1.0021

* Add .0011 if Fraction be required for the time 4, see page 329.

Mean Noon.	Apparent Obliquity.	The Sun's		Precession in Longitude.	Equation of Equinoxes.		Mean Longitude of ϵ 's Ascending Node.
		Horizontal Parallax.	Aberration.		In Long.	In R. A. (in time)	
1864.	⁰ 23 27						
Jan. 1	19° 45'	8° 72'	-20° 79'	0° 00'	+14° 84'	+0° 91'	235° 44' 5"
11	19° 46'	8° 72'	20° 79'	1° 38'	15° 13'	0° 93'	234° 52' 7"
21	19° 53'	8° 71'	20° 77'	2° 75'	15° 33'	0° 94'	234° 20' 9"
31	19° 63'	8° 70'	20° 75'	4° 13'	15° 37'	0° 94'	233° 49' 1"
Feb. 10	19° 74'	8° 69'	20° 71'	5° 50'	15° 27'	0° 93'	233° 17' 4"
20	19° 84'	8° 67'	20° 67'	6° 88'	15° 00'	0° 92'	232° 45' 6"
Mar. 1	19° 90'	8° 65'	20° 62'	8° 26'	14° 62'	0° 89'	232° 13' 8"
11	19° 90'	8° 63'	20° 57'	9° 63'	14° 13'	0° 86'	231° 42' 0"
21	19° 85'	8° 60'	20° 51'	11° 01'	13° 60'	0° 83'	231° 10' 2"
31	19° 73'	8° 58'	20° 45'	12° 38'	13° 07'	0° 80'	230° 38' 5"
Apr. 10	19° 55'	8° 55'	20° 39'	13° 76'	12° 60'	0° 77'	230° 6' 7"
20	19° 32'	8° 53'	20° 33'	15° 13'	12° 23'	0° 75'	229° 35' 0"
30	19° 07'	8° 51'	20° 28'	16° 51'	11° 08'	0° 73'	229° 3' 2"
May 10	18° 80'	8° 49'	20° 23'	17° 89'	11° 88'	0° 73'	228° 31' 4"
20	18° 54'	8° 47'	20° 19'	19° 26'	11° 90'	0° 73'	227° 59' 6"
30	18° 33'	8° 46'	20° 16'	20° 64'	12° 07'	0° 74'	227° 27' 9"
June 9	18° 16'	8° 45'	20° 13'	22° 01'	12° 33'	0° 75'	226° 56' 1"
19	18° 03'	8° 44'	20° 11'	23° 39'	12° 63'	0° 77'	226° 24' 3"
29	17° 98'	8° 44'	20° 11'	24° 77'	12° 93'	0° 79'	225° 52' 5"
July 9	17° 98'	8° 44'	20° 11'	26° 14'	13° 20'	0° 81'	225° 20' 8"
19	18° 03'	8° 44'	20° 12'	27° 52'	13° 39'	0° 82'	224° 49' 0"
29	18° 11'	8° 45'	20° 14'	28° 89'	13° 46'	0° 82'	224° 17' 2"
Aug. 8	18° 23'	8° 46'	20° 17'	30° 27'	13° 41'	0° 82'	223° 45' 5"
18	18° 34'	8° 48'	20° 21'	31° 65'	13° 21'	0° 81'	223° 13' 7"
28	18° 41'	8° 50'	20° 25'	33° 02'	12° 87'	0° 79'	222° 41' 9"
Sept. 7	18° 46'	8° 52'	20° 30'	34° 40'	12° 42'	0° 76'	222° 10' 1"
17	18° 46'	8° 54'	20° 36'	35° 77'	11° 90'	0° 73'	221° 38' 4"
27	18° 39'	8° 57'	20° 42'	37° 15'	11° 35'	0° 69'	221° 6' 6"
Oct. 7	18° 26'	8° 59'	20° 47'	38° 53'	10° 82'	0° 66'	220° 34' 8"
17	18° 08'	8° 61'	20° 53'	39° 90'	10° 35'	0° 63'	220° 3' 0"
27	17° 84'	8° 64'	20° 59'	41° 28'	10° 01'	0° 61'	219° 31' 3"
Nov. 6	17° 59'	8° 66'	20° 64'	42° 65'	9° 79'	0° 60'	218° 59' 5"
16	17° 33'	8° 68'	20° 69'	44° 03'	9° 73'	0° 60'	218° 27' 7"
26	17° 09'	8° 70'	20° 73'	45° 40'	9° 82'	0° 60'	217° 56' 0"
Dec. 6	16° 90'	8° 71'	20° 76'	46° 78'	10° 03'	0° 61'	217° 24' 2"
16	16° 76'	8° 72'	20° 78'	48° 16'	10° 32'	0° 63'	216° 52' 4"
26	16° 68'	8° 72'	20° 79'	49° 53'	10° 64'	0° 65'	216° 20' 6"
36	16° 69'	8° 72'	-20° 79'	50° 91'	+10° 94'	+0° 67'	215° 48' 9"
Mean Obliquity, Jan. 1, 1864 - - - - - ⁰ Precession of the Equinoxes for the Year 1864 ^{23 27 25} for 1 Day ^{50° 2556} 1376							Daily Motion. -3° 18'

Month and Day at Mean Noon.	X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
Jan. 1	+0° 1775516	-695	-0° 8871478	- 12	-0° 3849225	-294
2	1947299	700	8841168	24	3835074	300
3	2118494	705	8808104	37	3821726	305
4	2289045	710	8772292	50	3806186	310
5	2458900	715	8733738	63	3789457	315
6	2628001	720	8692453	77	3771543	320
7	2796292	724	8648446	92	3752448	325
8	2963717	728	8601730	107	3732178	330
9	3130216	731	8552318	123	3710739	335
10	3295732	734	8500228	139	3688140	340
11	3460209	737	8445479	155	3664388	344
12	3623594	740	8388096	171	3639492	348
13	3785833	742	8328100	187	3613461	352
14	3946876	744	8265510	203	3586304	356
15	4106673	745	8200348	218	3558031	360
16	4265183	745	8132643	233	3528654	365
17	4422351	745	8062420	249	3498183	370
18	4578133	745	7989700	264	3466629	375
19	4732490	744	7914509	280	3434004	380
20	4885371	743	7836874	295	3400319	385
21	5036735	741	7756820	311	3365585	390
22	5186535	739	7674370	327	3329812	394
23	5334729	736	7589552	344	3293011	398
24	5481273	733	7502393	362	3255196	401
25	5626124	730	7412918	379	3216376	404
26	5769241	727	7321153	397	3176562	407
27	5910585	723	7227126	414	3135766	411
28	6050112	719	7130867	431	3094001	414
29	6187780	714	7032402	448	3051279	418
30	6323549	709	6931755	465	3007610	421
31	6457377	704	6828958	481	2963007	424
Feb. 1	6589225	698	6724040	497	2917483	428
2	6719049	691	6617033	513	2871052	432
3	6846804	683	6507966	529	2823728	435
4	6972448	675	6396872	545	2775526	439
5	7095940	667	6283787	561	2726460	442
6	7217240	659	6168746	577	2676547	445
7	7336305	651	6051787	594	2625802	448
8	7453095	642	5932955	611	2574244	450
9	7567570	633	5812289	628	2521891	452
10	7679696	624	5689832	645	2468759	454
11	7789442	614	5565623	661	2414866	457
12	7896776	603	5439706	677	2360231	460
13	8001668	592	5312125	693	2304873	463
14	8104092	581	5182920	708	2248813	466
15	8204019	569	5052136	723	2192067	469
16	+0° 8301428	-557	-0° 4919814	-738	-0° 2134653	-471

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Feb. 16	+0° 8301428	-557	-0° 4919814	-738	-0° 2134653	-471
17	8396288	543	4785998	753	2076592	474
18	8488572	529	4650728	767	2017900	476
19	8578264	516	4514049	781	1958597	478
20	8665337	503	4376003	795	1898701	480
21	8749766	490	4236631	809	1838230	481
22	8831532	476	4095973	823	1777202	482
23	8910618	462	3954071	836	1715634	483
24	8986994	448	3810971	849	1653543	484
25	9060646	434	3666712	862	1590950	485
26	9131554	419	3521332	874	1527871	486
27	9199699	404	3374875	886	1464324	487
28	9265057	389	3227382	898	1400328	488
29	9327609	374	3078896	910	1335901	489
March 1	9387338	358	2929460	922	1271062	490
2	9444224	341	2779118	933	1205829	490
3	9498249	324	2627917	944	1140225	489
4	9549390	306	2475902	955	1074268	489
5	9597629	288	2323124	966	1007979	489
6	9642952	270	2169632	976	0941381	489
7	9685347	252	2015474	986	0874494	488
8	9724798	234	1860704	995	0807341	488
9	9761298	216	1705370	1004	0739944	487
10	9794834	197	1549526	1013	0672324	486
11	9825402	178	1393219	1022	0604504	485
12	9852995	158	1236499	1031	0536504	484
13	9877614	138	1079417	1039	0468348	483
14	9899255	118	0922022	1047	0400056	482
15	9917920	98	0764365	1055	0331650	481
16	9933607	77	0606493	1062	0263151	479
17	9946317	57	0448451	1069	0194578	477
18	9956053	37	0290289	1075	0125953	475
19	9962817	-17	00132052	1081	0057296	473
20	9966610	+3	00026212	1087	00011373	471
21	9967437	23	0184461	1093	0080036	469
22	9965302	44	0342648	1098	0148672	466
23	9960210	65	0500732	1103	0217262	463
24	9952160	87	0658665	1108	0285788	460
25	9941162	109	0816406	1112	0354230	457
26	9927219	131	0973915	1116	0422571	454
27	9910339	152	1131145	1120	0490791	451
28	9890524	173	1288052	1123	0558871	447
29	9867778	194	1444594	1126	0626793	443
30	9842104	215	1600723	1129	0694535	439
31	9813513	236	1756394	1132	0762079	435
April 1	9782012	258	1911558	1134	0829403	431
2	+0° 9747612	+279	+0° 2066170	-1136	+0° 0896487	-427

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April 2	+0° 9747612	+ 279	+0° 2066170	- 1136	+0° 0896487	- 427
3	9710317	300	2220181	1137	0963311	423
4	9670137	322	2373543	1138	1029854	419
5	9627086	344	2526207	1139	1096092	414
6	9581178	367	2678125	1139	1162007	409
7	9532434	389	2829252	1140	1227579	404
8	9480870	412	2979540	1140	1292787	399
9	9426504	434	3128944	1141	1357611	393
10	9369360	456	3277418	1140	1422030	387
11	9309460	479	3424915	1139	1486027	381
12	9246828	502	3571394	1137	1549581	375
13	9181488	525	3716813	1134	1612676	369
14	9113464	547	3861129	1131	1675293	363
15	9042783	569	4004303	1128	1737415	357
16	8969470	591	4146293	1125	1799023	351
17	8893548	613	4287064	1122	1860102	345
18	8815046	634	4426577	1119	1920635	339
19	8733990	655	4564796	1115	1980606	333
20	8650408	677	4701685	1111	2040000	326
21	8564320	700	4837210	1107	2098801	318
22	8475752	723	4971333	1103	2156993	310
23	8384734	746	5104023	1098	2214564	301
24	8291290	769	5235246	1093	2271498	292
25	8195446	791	5364965	1087	2327779	284
26	8097230	813	5493143	1080	2383393	276
27	7996667	835	5619746	1073	2438324	269
28	7893786	857	5744736	1066	2492555	262
29	7788612	879	5868078	1058	2546071	254
30	7681177	900	5989734	1050	2598857	247
May 1	7571510	922	6109667	1042	2650895	239
2	7459640	944	6227841	1034	2702168	230
3	7345602	966	6344223	1026	2752663	221
4	7229430	988	6458774	1017	2802364	212
5	7111158	1009	6571458	1008	2851253	202
6	6990825	1031	6682243	999	2899318	192
7	6868468	1053	6791094	989	2946545	182
8	6744130	1075	6897980	979	2992918	172
9	6617853	1097	7002872	969	3038427	162
10	6489677	1119	7105740	958	3083059	152
11	6359643	1140	7206555	946	3126801	142
12	6227793	1161	7305293	933	3169641	133
13	6094170	1182	7401927	920	3211569	123
14	5958816	1202	7496430	907	3252573	114
15	5821771	1222	7588780	894	3292643	104
16	5683079	1242	7678957	880	3331768	94
17	5542778	1262	7766939	866	3369941	83
18	+0° 5400910	+ 1282	+0° 7852707	- 852	+0° 3407152	- 72

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May 18	+0°5400910	+1282	+0°7852707	-852	+0°3407152	-72
19	°5257515	1301	°7936242	838	°3443394	61
20	°5112630	1320	°8017520	823	°3478656	50
21	°4966299	1339	°8096524	807	°3512932	39
22	°4818558	1357	°8173234	791	°3546213	28
23	°4669449	1375	°8247630	774	°3578492	17
24	°4519016	1394	°8319698	757	°3609760	-6
25	°4367295	1413	°8389418	740	°3640010	+6
26	°4214323	1432	°8456766	722	°3669232	17
27	°4060143	1450	°8521720	703	°3697415	28
28	°3904795	1468	°8584262	684	°3724552	39
29	°3748322	1486	°8644374	665	°3750633	50
30	°3590767	1504	°8702038	646	°3775651	62
31	°3432179	1521	°8757232	627	°3799597	74
June 1	°3272604	1538	°8809936	608	°3822463	87
2	°3112084	1554	°8860138	589	°3844242	99
3	°2950667	1570	°8907820	570	°3864926	111
4	°2788406	1586	°8952066	550	°3884511	123
5	°2625351	1601	°8995564	529	°3902991	135
6	°2461551	1616	°9035600	507	°3920362	147
7	°2297057	1630	°9073066	485	°3936618	159
8	°2131923	1644	°9107954	462	°3951755	170
9	°1966195	1658	°9140256	438	°3965771	181
10	°1799925	1672	°9169965	414	°3978663	192
11	°1633160	1686	°9197074	389	°3990427	203
12	°1465949	1699	°9221584	364	°4001061	214
13	°1298341	1712	°9243492	339	°4010566	225
14	°1130380	1725	°9262792	314	°4018938	237
15	°0962117	1737	°9279480	289	°4026177	249
16	°0793595	1748	°9293558	264	°4032284	262
17	°0624859	1758	°9305027	239	°4037257	275
18	°0455954	1767	°9313884	213	°4041098	288
19	°0286926	1776	°9320130	187	°4043806	301
20	+0°0117817	1784	°9323763	160	°4045382	313
21	-0°0051326	1792	°9324784	133	°4045826	325
22	°0220459	1800	°9323196	105	°4045137	337
23	°0389538	1807	°9318995	77	°4043316	349
24	°0558521	1814	°9312178	49	°4040360	361
25	°0727358	1820	°9302748	-21	°4036269	373
26	°0896008	1826	°9290702	+7	°4031042	385
27	°1064425	1831	°9276038	36	°4024679	397
28	°1232558	1836	°9258754	65	°4017179	409
29	°1400362	1840	°9238858	94	°4008546	422
30	°1567785	1843	°9216352	123	°3998778	434
July 1	°1734776	1846	°9191240	152	°3987879	447
2	°1901288	1848	°9163520	182	°3975853	460
3	-0°2067264	+1850	+0°9133208	+212	+0°3962701	+473

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July 3	-0°2067264	+1850	+0°9133208	+212	+0°3962701	+473
4	2232658	1852	0100314	242	3948429	486
5	2397420	1853	9064844	273	3933041	498
6	2561494	1853	9026806	304	3916539	509
7	2724836	1852	8986220	335	3898931	519
8	2887396	1851	8943096	366	3880223	528
9	3049130	1849	8897450	398	3860419	538
10	3209990	1846	8849296	429	3839526	549
11	3369931	1843	8798650	460	3817552	560
12	3528907	1839	8745528	491	3794501	571
13	3686878	1835	8689946	523	3770385	583
14	3843797	1830	8631926	554	3745209	595
15	3999625	1824	8571484	586	3718983	607
16	4154321	1818	8508638	618	3691714	619
17	4307840	1811	8443406	649	3663413	630
18	4460146	1804	8375814	680	3634086	641
19	4611194	1796	8305876	712	3603743	651
20	4760951	1787	8233608	744	3572390	661
21	4909378	1777	8159032	776	3540036	671
22	5056431	1767	8082162	808	3506686	680
23	5202071	1757	8003017	840	3472347	689
24	5346264	1746	7921610	872	3437027	698
25	5488965	1734	7837962	903	3400733	708
26	5630129	1721	7752091	934	3363474	718
27	5769715	1707	7664015	965	3325258	728
28	5907685	1691	7573763	995	3286098	738
29	6043987	1674	7481355	1025	3246004	748
30	6178584	1657	7386813	1056	3204984	757
31	6311432	1640	7290165	1087	3163051	766
Aug. 1	6442486	1623	7191438	1118	3120218	775
2	6571709	1606	7090665	1148	3076496	783
3	6699058	1588	6987873	1177	3031898	791
4	6824497	1569	6883090	1207	2986436	799
5	6947985	1549	6776352	1237	2940126	807
6	7069487	1529	6667688	1267	2892980	815
7	7188965	1509	6557130	1297	2845011	823
8	7306388	1488	6444710	1326	2796234	831
9	7421720	1466	6330465	1354	2746665	839
10	7534927	1443	6214426	1381	2696317	847
11	7645983	1419	6096630	1408	2645207	855
12	7754855	1395	5977110	1435	2593348	862
13	7861515	1370	5855900	1462	2540758	869
14	7965932	1345	5733037	1489	2487451	875
15	8068082	1319	5608556	1516	2433442	880
16	8167934	1293	5482490	1542	2378746	885
17	8265466	1267	5354876	1568	2323379	890
18	-0°8360652	+1240	+0°5225746	+1594	+0°2267353	+895

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Aug. 18	-0° 8360652	+ 1240	+0° 5225746	+ 1594	+0° 2267353	+ 895
19	° 8453462	1212	° 5095131	1618	° 2210683	900
20	° 8543872	1183	° 4903061	1641	° 2153380	905
21	° 8631862	1154	° 4829567	1664	° 2095458	910
22	° 8717400	1124	° 4694682	1687	° 2036933	915
23	° 8800452	1094	° 4558442	1710	° 1977821	920
24	° 8880992	1064	° 4420880	1732	° 1918135	924
25	° 8958993	1033	° 4282034	1754	° 1857892	928
26	° 9034424	1002	° 4141946	1776	° 1797110	932
27	° 9107262	970	° 4000652	1797	° 1735805	936
28	° 9177478	938	° 3858196	1818	° 1673998	939
29	° 9245048	905	° 3714617	1838	° 1611703	941
30	° 9309945	871	° 3569959	1857	° 1548939	943
31	° 9372150	837	° 3424267	1876	° 1485727	945
Sept. 1	° 9431640	803	° 3277582	1895	° 1422084	947
2	° 9488398	768	° 3129947	1913	° 1358028	949
3	° 9542400	732	° 2981411	1930	° 1293580	951
4	° 9593630	696	° 2832013	1946	° 1228759	953
5	° 9642072	660	° 2681799	1961	° 1163583	954
6	° 9687714	624	° 2530815	1975	° 1098073	955
7	° 9730537	588	° 2379104	1989	° 1032248	956
8	° 9770534	551	° 2226714	2003	° 0966129	956
9	° 9807693	514	° 2073693	2017	° 0899736	956
10	° 9842000	477	° 1920084	2031	° 0833088	955
11	° 9873449	439	° 1765934	2044	° 0766206	955
12	° 9902033	401	° 1611289	2057	° 0699108	955
13	° 9927745	363	° 1456189	2069	° 0631813	954
14	° 9950582	325	° 1300678	2080	° 0564341	953
15	° 9970535	287	° 1144801	2091	° 0496709	951
16	° 9987598	248	° 0988594	2101	° 0428933	949
17	1° 0001762	209	° 0832098	2110	° 0361033	947
18	° 0013023	170	° 0675352	2118	° 0293023	944
19	° 0021373	131	° 0518399	2125	° 0224924	941
20	° 0026804	91	° 0361279	2132	° 0156752	938
21	° 0029306	51	° 0204039	2138	° 0088528	935
22	° 0028873	+ 11	+0° 0046721	2144	+0° 0020271	932
23	° 0025499	- 28	-0° 0110624	2149	-0° 0047997	928
24	° 0019180	68	° 0267950	2153	° 0116258	924
25	1° 0009908	108	° 0425208	2157	° 0184490	919
26	° 9997685	148	° 0582353	2160	° 0252672	914
27	° 9982512	188	° 0739332	2163	° 0320782	909
28	° 9964383	228	° 0896099	2165	° 0388802	904
29	° 9943302	268	° 1052611	2166	° 0456709	899
30	° 9919270	308	° 1208814	2167	° 0524482	893
Oct. 1	° 9892298	348	° 1364656	2168	° 0592099	887
2	° 9862388	389	° 1520094	2167	° 0659540	881
3	-0° 9829542	- 430	-0° 1675077	+ 2165	-0° 0726783	+ 874

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Oct.	3	—0° 9829542	— 430	—0° 1675077	+ 2165	—0° 0726783	+ 874
	4	·9793772	471	·1829557	2163	·0793809	867
	5	·9755093	512	·1983485	2161	·0860595	860
	6	·9713511	553	·2136810	2158	·0927119	852
	7	·9669039	595	·2289488	2155	·0993363	844
	8	·9621696	636	·2441472	2151	·1059306	836
	9	·9571496	677	·2592712	2147	·1124926	828
	10	·9518454	718	·2743165	2143	·1190205	820
	11	·9462589	759	·2892784	2136	·1255122	812
	12	·9403914	800	·3041530	2129	·1319660	803
	13	·9342454	840	·3189364	2121	·1383802	793
	14	·9278224	880	·3336242	2112	·1447529	783
	15	·9211234	920	·3482126	2103	·1510824	772
	16	·9141506	960	·3626978	2094	·1573671	761
	17	·9069054	1000	·3770759	2084	·1636054	750
	18	·8993890	1040	·3913422	2073	·1697953	739
	19	·8916030	1080	·4054926	2061	·1759348	728
	20	·8835500	1120	·4195229	2049	·1820220	717
	21	·8752316	1159	·4334283	2037	·1880552	705
	22	·8666492	1198	·4472049	2024	·1940326	693
	23	·8578054	1237	·4608482	2010	·1999521	681
	24	·8487022	1276	·4743533	1995	·2058117	669
	25	·8393424	1315	·4877161	1980	·2116097	656
	26	·8297272	1354	·5009322	1965	·2173439	643
	27	·8198606	1392	·5139975	1949	·2230125	630
	28	·8097446	1430	·5269074	1932	·2286136	616
	29	·7993820	1468	·5396576	1915	·2341456	602
	30	·7887757	1506	·5522441	1898	·2396064	588
	31	·7779299	1544	·5646628	1880	·2449943	573
Nov.	1	·7668465	1581	·5769093	1862	·2503077	558
	2	·7555297	1618	·5889797	1842	·2555445	544
	3	·7439830	1654	·6008699	1821	·2607032	529
	4	·7322102	1691	·6125757	1799	·2657820	514
	5	·7202150	1728	·6240934	1777	·2707793	499
	6	·7080015	1764	·6354201	1755	·2756938	484
	7	·6955739	1799	·6465517	1732	·2805236	469
	8	·6829350	1833	·6574850	1708	·2852673	453
	9	·6700903	1867	·6682172	1684	·2899237	437
	10	·6570428	1901	·6787455	1659	·2944915	421
	11	·6437961	1934	·6890663	1633	·2989693	404
	12	·6303543	1967	·6991770	1607	·3033558	386
	13	·6167213	2000	·7090750	1580	·3076501	368
	14	·6029004	2032	·7187575	1553	·3118508	350
	15	·5888958	2064	·7282215	1526	·3159567	332
	16	·5747109	2095	·7374637	1498	·3199666	314
	17	·5603498	2125	·7464812	1468	·3238791	297
	18	—0° 5458161	—2155	—0° 7552712	+ 1437	—0° 3276928	+ 280

Month and Day at Mean Noon.	X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
Nov. 18	-0° 5438161	-2155	-0° 7552712	+1437	-0° 3276928	+280
19	° 5311146	2185	° 7638304	1406	° 3314063	263
20	° 5162489	2215	° 7721557	1375	° 3350185	245
21	° 5012237	2244	° 7802447	1344	° 3385282	227
22	° 4860431	2273	° 7880945	1313	° 3419340	209
23	° 4707114	2301	° 7957019	1281	° 3452347	190
24	° 4552333	2328	° 8030644	1249	° 3484290	171
25	° 4396135	2355	° 8101794	1216	° 3515157	152
26	° 4238570	2382	° 8170444	1182	° 3544940	133
27	° 4079681	2408	° 8236568	1148	° 3573628	113
28	° 3919518	2433	° 8300142	1113	° 3601208	93
29	° 3758134	2458	° 8361140	1077	° 3627671	73
30	° 3595583	2482	° 8419544	1040	° 3653008	53
Dec. 1	° 3431921	2506	° 8475329	1003	° 3677212	33
2	° 3267199	2529	° 8528478	965	° 3700273	+ 14
3	° 3101472	2551	° 8578972	926	° 3722182	- 5
4	° 2934799	2573	° 8626798	886	° 3742933	24
5	° 2767235	2595	° 8671944	847	° 3762521	43
6	° 2598828	2616	° 8714398	808	° 3780941	62
7	° 2429635	2635	° 8754146	769	° 3798187	82
8	° 2259708	2653	° 8791182	729	° 3814253	102
9	° 2089095	2671	° 8825498	689	° 3829139	123
10	° 1917848	2689	° 8857084	649	° 3842841	144
11	° 1746018	2705	° 8885934	608	° 3855355	165
12	° 1573653	2721	° 8912039	566	° 3866680	186
13	° 1400804	2736	° 8935394	523	° 3876811	206
14	° 1227521	2751	° 8955988	480	° 3885745	226
15	° 1053854	2765	° 8973814	436	° 3893480	246
16	° 0879854	2778	° 8988862	392	° 3900010	266
17	° 0705576	2790	° 9001126	347	° 3905332	286
18	° 0531068	2801	° 9010606	302	° 3909447	306
19	° 0356385	2811	° 9017296	257	° 3912350	326
20	° 0181577	2820	° 9021182	212	° 3914036	346
21	-0° 0006698	2829	° 9022263	167	° 3914505	366
22	+0° 0168197	2837	° 9020538	121	° 3913755	386
23	° 0343055	2844	° 9016002	75	° 3911787	407
24	° 0517822	2850	° 9008658	+ 29	° 3908598	428
25	° 0692443	2854	° 8998502	- 18	° 3904190	449
26	° 0866859	2857	° 8985532	66	° 3898561	469
27	° 1041014	2859	° 8969748	114	° 3891711	489
28	° 1214850	2860	° 8951158	162	° 3883644	509
29	° 1388308	2862	° 8929764	210	° 3874363	529
30	° 1561327	2863	° 8905574	259	° 3863868	549
31	° 1733847	2864	° 8878596	308	° 3852166	569
32	+0° 1905812	-2865	-0° 8848843	- 358	-0° 3839260	-589

PLANETARY
EPHEMERIDES
AT
MEAN NOON.

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	South.		°		South.		9
Jan. 1	19 58 46.51	22 33 12.3	0.678966	1 17.3	348 38 12.8	5 57 7.8	5642509
2	20 4 53.88	22 10 1.2	0.599531	1 19.4	353 11 7.1	5 38 29.4	5573466
3	20 10 50.29	21 45 40.8	0.515252	1 21.4	357 52 32.6	5 17 1.8	5504095
4	20 16 34.02	21 20 18.1	0.425942	1 23.2	2 42 44.5	4 52 39.7	5434870
5	20 22 3.19	20 54 2.0	0.331448	1 24.7	7 41 54.7	4 25 20.3	5366377
6	20 27 15.69	20 27 2.5	0.231657	1 26.0	12 50 11.0	3 55 3.3	5299278
7	20 32 9.18	19 59 31.9	0.126518	1 26.9	18 7 34.7	3 21 52.2	5234293
8	20 36 41.07	19 31 43.9	0.016054	1 27.5	23 34 1.5	2 45 54.6	5172207
	9				North.		
9	20 40 48.55	19 3 54.9	0.9900402	1 27.6	29 9 18.4	2 7 23.3	5113860
10	20 44 28.61	18 36 22.5	0.9779822	1 27.3	34 53 4.4	1 26 36.3	5060124
11	20 47 38.07	18 9 26.9	0.9654744	1 26.5	40 44 48.3	0 43 57.6	5011874
12	20 50 13.67	17 43 29.5	0.9525797	1 25.1	46 43 48.5	0 0 3.2	4969967
13	20 52 12.19	17 18 53.3	0.9393834	1 23.1	52 49 12.9	0 44 50.9	4935202
14	20 53 30.53	16 56 2.2	0.9259966	1 20.5	58 59 59.0	1 29 45.8	4908277
15	20 54 5.99	16 35 10.6	0.9125586	1 17.1	65 14 54.6	2 14 5.5	4889768
16	20 53 56.39	16 17 8.0	0.8992368	1 12.9	71 32 39.5	2 57 5.9	4880075
17	20 53 0.39	16 1 47.8	0.8862253	1 8.0	77 51 47.1	3 38 4.0	4879420
18	20 51 17.74	15 49 35.8	0.8737406	1 2.3	84 10 47.3	4 16 19.1	4887811
19	20 48 49.53	15 40 43.5	0.8620162	0 56.0	90 28 9.2	4 51 16.2	4905069
20	20 45 38.35	15 35 16.9	0.8512885	0 48.9	96 42 24.5	5 22 26.1	4930807
21	20 41 48.48	15 33 15.6	0.8417875	0 41.1	102 52 9.3	5 49 27.1	4964479
22	20 37 25.78	15 34 31.4	0.8337199	0 32.8	108 56 7.9	6 12 5.7	5005401
23	20 32 37.56	15 38 50.3	0.8272537	0 24.1	114 53 13.9	6 30 16.1	5052786
24	20 27 32.21	15 45 52.6	0.8225074	0 15.1	120 42 31.9	6 43 59.5	5105785
25	20 22 18.76	15 55 14.5	0.8195395	{ 0 6.2 }	126 23 17.8	6 53 23.6	5163519
26	20 17 6.29	16 6 30.2	0.8183463	23 48.0	131 54 59.1	6 58 40.8	5225120
27	20 12 3.46	16 19 12.9	0.8188654	23 39.4	137 17 14.6	7 0 7.4	5289736
28	20 7 17.97	16 32 57.7	0.8209835	23 31.1	142 29 52.3	6 58 1.9	5356578
29	20 2 56.25	16 47 21.3	0.8245491	23 23.3	147 32 50.3	6 52 44.5	5424911
30	19 59 3.40	17 2 3.3	0.8293850	23 16.0	152 26 12.8	6 44 35.4	5494071
Feb. 1	19 55 42.96	17 16 46.6	0.8353030	23 9.3	157 10 11.3	6 33 54.8	5563465
2	19 52 57.17	17 31 16.8	0.8421149	23 3.2	161 45 1.8	6 21 2.1	5632577
3	19 50 47.07	17 45 21.7	0.8496402	22 57.7	166 11 3.7	6 6 15.4	5700955
4	19 49 12.69	17 58 52.2	0.8577137	22 52.8	170 28 39.6	5 49 51.4	5768220
5	19 48 13.32	18 11 40.4	0.8661879	22 48.4	174 38 13.7	5 32 5.4	5834044
6	19 47 47.69	18 23 40.1	0.8749354	22 44.6	178 40 11.3	5 13 11.2	5898157
7	19 47 54.15	18 34 46.2	0.8838471	22 41.2	182 34 57.9	4 53 21.0	5960335
8	19 48 30.81	18 44 54.6	0.8928331	22 38.3	186 22 59.9	4 32 45.5	6020396
9	19 49 35.69	18 54 1.8	0.9018196	22 35.9	190 4 42.5	4 11 34.4	6078187
10	19 51 6.71	19 2 5.1	0.9107474	22 33.9	193 40 31.1	3 49 55.7	6133599
11	19 53 1.91	19 9 1.8	0.9195696	22 32.2	197 10 49.7	3 27 56.9	6186533

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	9	h m	° ' "	North. ° ' "	9
Feb. 10	19 53 1' 91	19 9 1' 8	9195696	22 32' 2	197 10 49' 7	3 27 56' 9	6186533
11	19 55 19' 35	19 14 50' 2	9282497	22 30' 8	200 36 2' 13	5 44' 2	6236924
12	19 57 57' 22	19 19 28' 1	9367604	22 29' 8	203 56 30' 7	2 43 22' 9	6284713
13	20 0 53' 78	19 22 54' 2	9450817	22 29' 1	207 12 37' 3	2 20 57' 9	6329868
14	20 4 7' 45	19 25 7' 4	9531993	22 28' 6	210 24 42' 8	1 58 32' 9	6372363
15	20 7 36' 75	19 26 6' 2	9611029	22 28' 4	213 33 6' 5	1 36 11' 8	6412179
16	20 11 20' 36	19 25 50' 0	9687874	22 28' 4	216 38 7' 8	1 13 57' 3	6449311
17	20 15 17' 01	19 24 18' 0	9762496	22 28' 6	219 40 4' 5	0 51 51' 9	6483755
18	20 19 25' 60	19 21 29' 5	9834891	22 28' 9	222 39 14' 0	29 58' 1	6515510
19	20 23 45' 07	19 17 23' 9	9905074	22 29' 5	225 35 52' 8	0 8 17' 9	6544589
20	20 28 14' 52	19 12 0' 7	9973068	22 30' 2	228 30 16' 7	South. ° 13 7' 2	6570992
21	20 32 53' 06	19 5 19' 7	0038911	22 31' 0	231 22 40' 9	0 34 15' 6	6594733
22	20 37 39' 97	18 57 20' 5	0102649	22 32' 0	234 13 20' 2	0 55 5' 8	6615821
23	20 42 34' 53	18 48 2' 8	0164330	22 33' 0	237 2 28' 6	1 15 36' 7	6634264
24	20 47 36' 11	18 37 26' 7	0224007	22 34' 2	239 50 20' 0	1 35 47' 0	6650073
25	20 52 44' 13	18 25 32' 0	0281733	22 35' 5	242 37 7' 4	1 55 35' 8	6663259
26	20 57 58' 10	18 12 18' 7	0337566	22 36' 9	245 23 4' 3	2 15 1' 9	6673825
27	21 3 17' 55	17 57 46' 5	0391555	22 38' 4	248 8 23' 0	2 34 4' 3	6681782
28	21 8 42' 05	17 41 55' 9	0443759	22 39' 9	250 53 16' 3	2 52 42' 0	6687133
29	21 14 11' 23	17 24 46' 8	0494223	22 41' 5	253 37 56' 4	3 10 53' 8	6689884
Mar. 1	21 19 44' 76	17 6 19' 1	0543004	22 43' 2	256 22 35' 7	3 28 38' 7	6690035
2	21 25 22' 33	16 46 33' 3	0590141	22 44' 9	259 7 26' 3	3 45 55' 5	6687584
3	21 31 3' 68	16 25 29' 5	0635583	22 46' 7	261 52 40' 5	4 2 42' 8	6682533
4	21 36 48' 56	16 3 7' 7	0679668	22 48' 6	264 38 30' 5	4 18 59' 4	6674878
5	21 42 36' 77	15 39 28' 3	0722133	22 50' 5	267 25 8' 7	4 34 43' 9	6664613
6	21 48 28' 13	15 14 31' 5	0763113	22 52' 4	270 12 47' 6	4 49 54' 4	6651723
7	21 54 22' 47	14 48 17' 7	0802642	22 54' 4	273 1 39' 8	5 4 29' 4	6636225
8	22 0 19' 68	14 20 47' 2	0840740	22 56' 5	275 51 58' 3	5 18 26' 7	6618087
9	22 6 19' 64	13 52 0' 0	0877428	22 58' 6	278 43 56' 4	5 31 44' 3	6597306
10	22 12 22' 27	13 21 56' 7	0912725	23 0' 8	281 37 47' 8	5 44 19' 7	6573871
11	22 18 27' 52	12 50 37' 6	0946648	23 3' 0	284 33 46' 3	5 56 10' 4	6547776
12	22 24 35' 34	12 18 2' 9	0979195	23 5' 2	287 32 6' 4	6 7 13' 5	6510005
13	22 30 45' 71	11 44 13' 1	1010374	23 7' 5	290 33 3' 2	6 17 25' 7	6487559
14	22 36 58' 61	11 9 8' 5	1040177	23 9' 8	293 36 52' 0	6 26 43' 4	6453424
15	22 43 14' 07	10 32 49' 6	1068602	23 12' 1	296 43 49' 1	6 35 3' 0	6418603
16	22 49 32' 13	9 55 16' 7	1095622	23 14' 6	299 54 11' 0	6 42 20' 0	6377094
17	22 55 52' 85	9 16 30' 5	1121214	23 17' 0	303 8 15' 2	6 48 29' 9	6334907
18	23 2 16' 25	8 36 31' 6	1145352	23 19' 5	306 26 19' 8	6 53 27' 4	6290056
19	23 8 42' 44	7 55 20' 5	1167990	23 22' 0	309 48 43' 4	6 57 7' 2	6242570
20	23 15 11' 49	7 12 58' 2	1189077	23 24' 6	313 15 45' 7	6 59 23' 1	6192475
21	23 21 43' 52	6 29 25' 1	1208555	23 27' 3	316 47 46' 8	7 0 8' 6	6139832

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	°	h m	° ' "	South. ° ' "	9
Mar. 21	23 21 43.52	6 29 25.1	1208555	23 27.3	316 47 46.8	7 0 8.6	6139832
22	23 28 18.63	5 44 42.6	1226360	23 30.0	320 25 7.5	6 59 16.8	6084701
23	23 34 56.95	4 58 51.7	1242405	23 32.7	324 8 9.3	6 56 40.1	6027177
24	23 41 38.61	4 11 53.7	1256600	23 35.5	327 57 14.3	6 52 10.6	5967370
25	23 48 23.74	3 23 50.2	1268841	23 38.4	331 52 44.7	6 45 40.2	5905426
26	23 55 12.47	2 34 42.9	1279014	23 41.4	335 55 3.1	6 37 0.2	5841526
27	0 2 4.91	1 44 34.0	1286980	23 44.4	340 4 32.0	6 26 2.0	5775387
28	0 9 1.21	0 53 26.2	1292598	23 47.4	344 21 33.3	6 12 36.8	5708770
29	0 16 1.45	0 1 22.1	1295705	23 50.6	348 46 28.4	5 56 36.4	5640501
		North.					
30	0 23 5.73	0 51 34.4	1296128	23 53.8	353 19 37.2	5 37 53.1	5571448
31	0 30 14.09	1 45 19.7	1293677	23 57.1	358 1 17.8	5 16 20.4	5502061
Apr. 1	0 37 26.56	2 39 48.6	1288149	* *	2 51 45.1	4 51 53.0	5432849
2	0 44 43.11	3 34 56.0	1279328	0 0.4	7 51 11.3	4 24 28.2	5364386
3	0 52 3.65	4 30 35.6	1266988	0 3.8	12 59 43.3	3 54 6.0	5297334
4	0 59 28.02	5 26 40.1	1250897	0 7.3	18 17 23.1	3 20 49.8	5232423
5	1 6 56.00	6 23 1.6	1230816	0 10.8	23 44 5.3	2 44 47.5	5170432
6	1 14 27.25	7 19 31.1	1206516	0 14.4	29 19 37.6	2 6 11.8	5112206
7	1 22 1.35	8 15 58.5	1177769	0 18.0	35 3 38.0	1 25 21.1	5058615
8	1 29 37.75	9 12 13.1	1144360	0 21.7	40 55 35.1	0 42 39.4	5010539
		North.					
9	1 37 15.83	10 8 3.1	1106103	0 25.4	46 54 47.5	0 1 23.2	4968828
10	1 44 54.77	11 3 16.2	1062837	0 29.1	53 0 22.3	0 46 11.7	4934281
11	1 52 33.73	11 57 39.8	1014439	0 32.8	59 11 17.0	1 31 6.2	4907597
12	2 0 11.71	12 51 0.2	0960829	0 36.5	65 26 18.9	2 15 24.2	4889339
13	2 7 47.61	13 43 5.0	0901979	0 40.2	71 44 7.6	2 58 21.6	4879907
14	2 15 20.30	14 33 41.4	0837909	0 43.8	78 3 16.2	3 39 15.2	4879520
15	2 22 48.57	15 22 37.2	0768702	0 47.4	84 22 15.0	4 17 25.0	4888178
16	2 30 11.21	16 9 41.9	0694462	0 50.8	90 39 33.0	4 52 15.7	4905689
17	2 37 26.96	16 54 44.8	0615388	0 54.1	96 53 41.6	5 23 18.4	4931669
18	2 44 34.62	17 37 37.7	0531694	0 57.3	103 3 17.5	5 50 11.7	4965566
19	2 51 33.00	18 18 13.3	0443631	1 0.3	109 7 5.1	6 12 42.4	5006690
20	2 58 20.97	18 56 29.7	0351487	1 3.2	115 3 58.2	6 30 44.7	5054253
21	3 4 57.46	19 32 10.5	0255571	1 5.9	120 53 1.8	6 44 20.2	5107402
22	3 11 21.46	20 5 24.9	0156201	1 8.3	126 33 32.2	6 53 36.7	5165266
23	3 17 32.03	20 36 6.8	0053711	1 10.5	132 4 57.3	6 58 46.7	5226964
		9					
24	3 23 28.30	21 4 15.4	9948440	1 12.5	137 26 56.0	7 0 6.6	5291656
25	3 29 9.44	21 29 50.8	9840726	1 14.2	142 39 17.0	6 57 55.1	5358555
26	3 34 34.72	21 52 54.0	9730905	1 15.7	147 41 58.0	6 52 32.1	5426921
27	3 39 43.40	22 13 26.2	9619321	1 16.9	152 35 3.9	6 44 18.1	5496093
28	3 44 34.83	22 31 29.2	9506304	1 17.8	157 18 46.2	6 33 33.2	5565433
29	3 49 8.38	22 47 5.3	9392193	1 18.4	161 53 20.8	6 20 36.8	5634585

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>North.</i>		9		<i>North.</i>		9
Apr. 29	h m s	° ' "		h m	° ' "	° ' "	
30	3 49 8.38	22 47 5.3	.9392193	1 18.4	161 53 20.8	6 20 36.8	.5634585
May 1	3 53 23.48	23 0 16.7	.9277330	1 18.7	166 19 7.6	6 5 46.8	.5702936
2	3 57 19.58	23 11 5.9	.9162058	1 18.7	170 36 29.0	5 49 20.1	.5770165
3	4 0 56.18	23 19 35.4	.9046726	1 18.3	174 45 49.3	5 31 31.9	.5835944
4	4 4 12.81	23 25 47.8	.8931706	1 17.6	178 47 33.8	5 12 35.8	.5900003
5	4 7 9.09	23 29 45.5	.8817369	1 16.6	182 42 8.3	4 52 43.9	.5962122
6	4 9 44.63	23 31 31.1	.8704111	1 15.2	186 29 58.7	4 32 7.2	.6022119
7	4 11 59.17	23 31 7.0	.8592348	1 13.5	190 11 30.7	4 10 54.9	.6079844
8	4 13 52.50	23 28 36.0	.8482514	1 11.4	193 47 9.1	3 49 15.6	.6135183
9	4 15 24.51	23 24 0.4	.8375070	1 9.0	197 17 18.5	3 27 16.2	.6188044
10	4 16 35.23	23 17 23.1	.8270497	1 6.2	200 42 22.2	3 5 3.1	.6238362
11	4 17 24.78	23 8 47.3	.8169308	1 3.1	204 22 42.8	2 42 41.6	.6286075
12	4 17 53.48	22 58 16.5	.8072022	0 59.6	207 18 42.1	2 20 16.5	.6331153
13	4 18 1.79	22 45 54.8	.7979192	0 55.8	210 30 40.6	1 57 51.7	.6373569
14	4 17 50.39	22 31 46.8	.7891366	0 51.7	213 38 58.2	1 35 30.6	.6413309
15	4 17 20.13	22 15 58.3	.7809111	0 47.3	216 43 53.8	1 13 16.2	.6450362
16	4 16 32.09	21 58 36.2	.7732987	0 42.5	219 45 45.3	0 51 11.2	.6484727
17	4 15 27.59	21 39 48.1	.7663542	0 37.5	222 44 50.1	0 29 17.8	.6516405
18	4 14 8.12	21 19 43.2	.7601288	0 32.3	225 41 24.7	0 7 38.1	.6545405
19	4 12 35.43	20 58 31.7	.7546713	0 26.8	228 35 44.8	0 13 46.6	.6571727
20	4 10 51.42	20 36 25.6	.7500242	0 21.1	231 28 5.8	0 34 54.4	.6595394
21	4 8 58.20	20 13 38.0	.7462246	0 15.3	234 18 42.2	0 55 44.1	.6616403
22	4 6 57.96	19 50 22.8	.7433010	0 9.4	237 7 48.2	1 16 14.4	.6634769
23	4 4 53.01	19 26 55.3	.7412741	{ 0 3.1 }	239 55 37.4	1 36 24.0	.6650503
24	4 2 45.69	19 3 30.8	.7401554	23 51.3	242 42 23.2	1 56 12.2	.6663611
25	4 0 38.33	18 40 25.4	.7399463	23 45.3	245 28 18.8	2 15 37.6	.6674107
26	3 58 33.25	18 17 55.3	.7406396	23 39.4	248 13 36.7	2 34 39.3	.6681981
27	3 56 32.65	17 56 15.7	.7422168	23 33.6	250 58 29.4	2 53 16.1	.6687255
28	3 54 38.60	17 35 41.4	.7446523	23 27.9	253 43 9.3	3 11 27.1	.6689929
29	3 52 53.00	17 16 25.8	.7479126	23 22.4	256 27 48.9	3 29 11.2	.6690002
30	3 51 17.59	16 58 41.3	.7519579	23 17.1	259 12 40.1	3 46 27.0	.6687473
31	3 49 53.90	16 42 38.2	.7567431	23 11.9	261 57 55.3	4 3 13.5	.6682345
June 1	3 48 43.22	16 28 25.6	.7622188	23 7.0	264 43 46.6	4 19 29.1	.6674611
2	3 47 46.67	16 16 10.5	.7683331	23 2.4	267 30 26.4	4 35 12.6	.6664269
3	3 47 5.17	16 5 58.2	.7750334	22 58.1	270 18 7.3	4 50 22.0	.6651308
4	3 46 39.46	15 57 52.4	.7822666	22 54.0	273 7 2.0	5 4 55.8	.6635723
5	3 46 30.07	15 51 55.0	.7899797	22 50.2	275 57 23.4	5 18 51.9	.6617505
6	3 46 37.43	15 48 6.3	.7981227	22 46.6	278 49 24.8	5 32 8.2	.6596644
7	3 47 1.81	15 46 25.8	.8066457	22 43.3	281 41 19.7	5 44 42.3	.6573129
8	3 47 43.39	15 46 51.2	.8155027	22 40.4	284 39 22.3	5 56 31.7	.6546953
9	3 48 42.23	15 49 19.9	.8246500	22 37.7	287 37 46.9	6 7 33.1	.6518101
10	3 49 58.36	15 53 47.5	.8340468	22 35.3	290 38 48.7	6 17 43.7	.6486574

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	<i>9</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>9</i>
June 9	3 49 58.36	15 53 47.5	.8340468	22 35.3	290 38 48.7	6 17 43.7	.6486574
10	3 51 31.73	16 0 9.9	.8436546	22 32.2	293 42 43.0	6 26 59.8	.6452357
11	3 53 22.25	16 8 21.6	.8534384	22 31.4	296 49 46.0	6 35 17.4	.6415455
12	3 55 29.83	16 18 17.0	.8633656	22 29.8	300 0 14.3	6 42 32.4	.6375865
13	3 57 54.36	16 29 50.4	.8734070	22 28.6	303 14 25.6	6 48 40.1	.6333595
14	4 0 35.69	16 42 54.9	.8835340	22 27.6	306 32 37.7	6 53 35.4	.6288665
15	4 3 33.73	16 57 24.4	.8937211	22 26.8	309 55 9.4	6 57 12.6	.6241099
16	4 6 48.36	17 13 11.3	.9039451	22 26.4	313 22 20.5	6 59 25.9	.6190926
17	4 10 19.51	17 30 9.1	.9141830	22 26.2	316 54 30.9	7 0 8.5	.6138205
18	4 14 7.09	17 48 10.2	.9244147	22 26.3	320 32 1.6	6 59 13.6	.6083000
19	4 18 11.06	18 7 7.4	.9346188	22 26.7	324 15 14.2	6 56 33.5	.6025405
20	4 22 31.39	18 26 52.6	.9447771	22 27.4	328 4 30.6	6 52 0.5	.5965530
21	4 27 8.09	18 47 18.1	.9548702	22 28.3	332 0 12.9	6 45 26.3	.5903524
22	4 32 1.15	19 8 15.5	.9648794	22 29.5	336 2 44.1	6 36 42.2	.5839567
23	4 37 10.61	19 29 36.3	.9747859	22 30.9	340 12 26.4	6 25 39.6	.5773877
24	4 42 36.49	19 51 12.0	.9845705	22 32.7	344 29 41.8	6 12 9.8	.5706720
25	4 48 18.83	20 12 53.0	.9942134	22 34.7	348 54 51.6	5 56 4.7	.5638419
26	4 54 17.65	20 34 30.0	.0036942	22 37.0	353 28 15.7	5 37 16.2	.5569352
27	5 0 32.97	20 55 52.9	.0129016	22 39.6	358 10 12.1	5 15 38.2	.5499960
28	5 7 4.74	21 16 51.4	.0220836	22 42.5	3 0 55.7	4 51 5.4	.5430756
29	5 13 52.86	21 37 14.3	.0309464	22 45.6	8 0 38.3	4 33 35.2	.5362325
30	5 20 57.20	21 56 50.7	.0395559	22 48.9	13 9 27.1	4 13 53.7	.5295324
July 1	5 28 17.48	22 15 28.6	.0478875	22 52.6	18 27 23.5	3 19 46.3	.5230487
2	5 35 53.38	22 32 56.2	.0559149	22 56.5	23 54 22.2	2 43 39.0	.5168595
3	5 43 44.37	22 49 1.4	.0636111	23 0.7	29 30 10.4	2 4 59.0	.5110492
4	5 51 49.84	23 3 31.8	.0709508	23 5.1	35 14 26.0	1 24 4.5	.5057055
5	6 0 8.98	23 16 15.5	.0779068	23 9.6	41 6 37.3	0 41 19.9	.5009155
6	6 8 40.80	23 27 1.0	.0844552	23 14.4	47 6 2.3	0 24 4.8	.4967646
7	6 17 24.15	23 35 37.2	.0905722	23 19.4	53 11 48.2	0 47 34.0	.4933327
8	6 26 17.68	23 41 54.3	.0962376	23 24.5	59 22 51.7	1 32 28.2	.4906886
9	6 35 19.93	23 45 43.4	.1014335	23 29.7	65 38 0.2	2 16 44.3	.4888889
10	6 44 29.27	23 46 57.5	.1061470	23 35.0	71 55 53.0	2 59 38.6	.4879730
11	6 53 43.96	23 45 31.1	.1103690	23 40.4	78 15 3.2	3 40 27.8	.4879612
12	7 3 2.25	23 41 20.8	.1140951	23 45.8	84 34 0.7	4 18 32.1	.4888545
13	7 12 22.33	23 34 24.8	.1173255	23 51.2	90 51 14.6	4 53 16.2	.4906318
14	7 21 42.46	23 24 43.8	.1200662	23 56.6	97 5 16.5	5 24 11.6	.4932549
15	7 31 0.94	23 12 19.8	.1223267	* *	103 14 43.3	5 50 57.1	.4966676
16	7 40 16.23	22 57 16.7	.1241208	0 2.0	109 18 19.5	6 13 19.6	.5008010
17	7 49 26.87	22 39 40.0	.1254652	0 7.3	115 14 59.4	6 31 13.6	.5055755
18	7 58 31.61	22 19 36.2	.1263799	0 12.4	121 3 48.4	6 44 41.1	.5109003
19	8 7 29.38	21 57 13.1	.1268857	0 17.4	126 44 3.0	6 53 49.8	.5167057

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>North.</div> <div>° ' "</div> </div> <div> <div>°</div> <div>9</div> </div> </div>							
July 19	h m s	° ' "	°	h m	° ' "	North.	9
19	8 7 29.38	21 57 13.1	1268857	0 17.4	126 44 3.0	6 53 49.8	5167057
20	8 16 19.25	21 32 38.7	1270050	0 22.3	132 15 11.4	6 58 52.5	5228862
21	8 25 0.48	21 6 1.7	1267608	0 27.1	137 36 52.8	7 0 5.6	5293636
22	8 33 32.50	20 37 31.3	1261758	0 31.7	142 48 56.3	6 57 47.9	5360589
23	8 41 54.89	20 7 16.1	1252720	0 36.1	147 51 19.9	6 52 19.3	5428995
24	8 50 7.32	19 35 25.0	1240711	0 40.4	152 44 8.7	6 44 0.4	5498187
25	8 58 9.63	19 2 6.8	1225931	0 44.5	157 27 34.2	6 33 11.1	5567582
26	9 6 1.74	18 27 29.6	1208566	0 48.4	162 15 52.5	6 20 10.9	5636663
27	9 13 43.63	17 51 41.5	1188794	0 52.2	166 27 23.6	6 5 17.7	5704988
28	9 21 15.38	17 14 50.0	1166773	0 55.8	170 44 30.0	5 48 48.2	5772181
29	9 28 37.09	16 37 2.2	1142650	0 59.2	174 53 36.1	5 30 57.7	5837914
30	9 35 48.92	15 58 24.9	1116553	1 2.4	178 55 7.1	5 11 59.6	5901919
Aug. 1	9 42 51.06	15 19 4.4	1088603	1 5.5	182 49 28.8	4 52 6.3	5963977
2	9 49 43.71	14 39 6.5	1058900	1 8.5	186 37 7.3	4 31 28.3	6023910
3	9 56 27.09	13 58 36.9	1027533	1 11.3	190 18 28.1	4 10 15.2	6081567
4	10 3 1.43	13 17 40.8	0994584	1 13.9	193 53 56.1	3 48 35.1	6136834
5	10 9 26.98	12 36 22.8	0960122	1 16.4	197 23 55.8	3 26 35.2	6189619
6	10 15 43.95	11 54 47.8	0924201	1 18.7	200 48 50.4	3 4 21.7	6239858
7	10 21 52.57	11 12 59.9	0886868	1 20.9	204 9 2.7	2 42 0.0	6287492
8	10 27 53.05	10 31 3.1	0848168	1 23.0	207 24 54.3	2 19 34.8	6332490
9	10 33 45.59	9 49 1.5	0808125	1 24.9	210 36 45.8	1 57 10.0	6374826
10	10 39 30.39	9 6 58.5	0766771	1 26.7	213 44 56.8	1 34 49.0	6414486
11	10 45 7.61	8 24 57.7	0724113	1 28.4	216 49 46.5	1 12 35.0	6451457
12	10 50 37.39	7 43 2.4	0680165	1 29.9	219 51 32.6	0 50 30.4	6485742
13	10 55 59.92	7 1 15.7	0634938	1 31.3	222 50 32.6	0 28 37.3	6517339
14	11 1 15.21	6 19 41.1	0588428	1 32.6	225 47 2.7	0 6 57.9	6546259
15	11 6 23.43	5 38 21.4	0540623	1 33.8	228 41 19.0	0 14 26.2	6572502
16	11 11 24.63	4 57 19.6	0491524	1 34.9	231 33 36.5	0 35 33.5	6596085
17	11 16 18.84	4 16 38.6	0441115	1 35.9	234 24 9.8	0 56 22.6	6617013
18	11 21 6.08	3 36 21.6	0389375	1 36.7	237 13 13.2	1 16 52.2	6635297
19	11 25 46.34	2 56 31.4	0336283	1 37.4	240 1 0.2	1 37 1.3	6650951
20	11 30 19.59	2 17 11.2	0281825	1 38.0	242 47 44.3	1 56 48.7	6663978
21	11 34 45.74	1 38 24.1	0225966	1 38.5	245 33 38.4	2 16 13.4	6674387
22	11 39 4.71	1 0 13.2	0168692	1 38.9	248 18 55.2	2 35 14.2	6682187
23	11 43 16.34	0 22 41.8	0109966	1 39.1	251 3 47.2	2 53 50.3	6687381
24	11 47 20.47	0 14 6.5	0049760	1 39.2	253 48 26.9	3 12 0.5	6689976
25	11 51 16.86	0 50 8.3	9988042	1 39.2	256 33 6.5	3 29 43.7	6689969
26	11 55 5.26	1 25 19.4	9924798	1 39.1	259 17 58.2	3 46 58.7	6687361
27	11 58 45.35	1 59 35.6	9859998	1 38.8	262 3 14.1	4 3 44.2	6682151
28	12 2 16.75	2 32 52.8	9793624	1 38.3	264 49 6.7	4 19 58.9	6674337

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South.</i> <i>° ' "</i>	<i>9</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>9</i>
Aug. 27	12 2 16.75	2 32 52.8	.9793624	1 38.3	264 49 6.7	4 19 58.9	.6674337
28	12 5 39.06	3 5 5.8	.9725667	1 37.7	267 35 48.1	4 35 41.2	.6663914
29	12 8 51.79	3 36 9.7	.9656121	1 37.0	270 23 31.0	4 50 49.6	.6650872
30	12 11 54.41	4 5 59.0	.9584995	1 36.1	273 12 28.0	5 5 22.3	.6635203
31	12 14 46.33	4 34 27.2	.9512309	1 35.0	276 2 52.2	5 19 17.2	.6616905
Sept. 1	12 17 26.87	5 1 27.9	.9438101	1 33.7	278 54 56.8	5 32 32.3	.6595961
2	12 19 55.30	5 26 53.8	.9362430	1 32.3	281 48 55.4	5 45 5.0	.6572363
3	12 22 10.83	5 50 37.1	.9285383	1 30.6	284 45 2.0	5 56 52.8	.6546104
4	12 24 12.57	6 12 29.3	.9207068	1 28.6	287 43 31.2	6 7 52.8	.6517168
5	12 25 59.61	6 32 20.8	.9127651	1 26.4	290 44 38.0	6 18 1.7	.6485558
6	12 27 30.94	6 50 1.4	.9047326	1 24.0	293 48 37.8	6 27 16.0	.6451258
7	12 28 45.53	7 5 20.3	.8966347	1 21.3	296 55 46.8	6 35 31.8	.6414271
8	12 29 42.28	7 18 5.9	.8885040	1 18.3	300 6 21.6	6 42 44.8	.6374597
9	12 30 20.10	7 28 5.2	.8803786	1 15.0	303 20 40.0	6 48 50.4	.6332246
10	12 30 37.94	7 35 5.4	.8723069	1 11.3	306 38 59.8	6 53 43.3	.6287231
11	12 30 34.75	7 38 52.9	.8643468	1 7.3	310 1 39.8	6 57 18.1	.6239583
12	12 30 9.63	7 39 13.8	.8565665	1 3.0	313 28 59.6	6 59 28.6	.6189328
13	12 29 21.83	7 35 55.0	.8490463	0 58.2	317 1 19.6	7 0 8.3	.6136529
14	12 28 10.85	7 28 43.9	.8418794	0 53.1	320 39 0.5	6 59 10.2	.6081249
15	12 26 36.52	7 17 30.0	.8351712	0 47.6	324 22 23.9	6 56 26.8	.6023580
16	12 24 39.09	7 2 5.2	.8290394	0 41.7	328 11 51.9	6 51 50.2	.5963634
17	12 22 19.37	6 42 25.7	.8236124	0 35.5	332 7 46.6	6 45 12.1	.5901564
18	12 19 38.76	6 18 32.0	.8190264	0 28.9	336 10 30.7	6 36 23.8	.5837549
19	12 16 39.37	5 50 32.2	.8154219	0 22.0	340 20 26.7	6 25 16.8	.5771808
20	12 13 24.07	5 18 40.8	.8129375	0 14.8	344 37 56.5	6 11 42.3	.5704610
21	12 9 56.49	4 43 21.6	.8117028	{ 12 11 3 12 11 3}	349 3 21.3	5 55 32.1	.5636278
22	12 6 21.01	4 5 6.8	.8118319	23 52.4	353 37 1.0	5 36 38.6	.5567193
23	12 2 42.64	3 24 37.1	.8134147	23 44.9	358 19 13.4	5 14 55.2	.5497798
24	11 59 6.85	2 42 42.0	.8165084	23 37.5	3 10 13.6	4 50 17.0	.5428609
25	11 55 39.41	2 0 14.6	.8211334	23 30.4	8 10 13.1	4 22 41.3	.5360208
26	11 52 26.06	1 18 12.8	.8272683	23 23.6	13 19 18.9	3 52 8.2	.5293265
27	11 49 32.31	0 37 34.6	.8348513	23 17.2	18 37 32.3	3 18 41.5	.5228507
		<i>North.</i>					
28	11 47 3.23	0 0 44.5	.8437812	23 11.3	24 4 47.7	2 42 29.3	.5166720
29	11 45 3.11	0 35 53.9	.8539224	23 5.9	29 40 52.0	2 3 44.8	.5108750
30	11 43 35.44	1 7 10.1	.8651138	23 1.0	35 25 22.8	1 22 46.4	.5055471
Oct. 1	11 42 42.73	1 33 57.8	.8771776	22 56.8	41 17 48.3	0 39 58.9	.5007759
		<i>North.</i>					
2	11 42 26.53	1 55 50.8	.8899256	22 53.2	47 17 25.9	0 4 7.8	.4966464
3	11 42 47.44	2 12 31.8	.9031688	22 50.2	53 23 22.7	0 48 57.8	.4932378
4	11 43 45.21	2 23 52.2	.9167258	22 47.7	59 34 35.0	1 33 51.4	.4906192
5	11 45 18.81	2 29 51.0	.9304257	22 45.9	65 49 49.8	2 18 5.7	.4888466
6	11 47 26.59	2 30 33.5	.9441145	22 44.6	72 7 46.3	3 0 56.7	.4879585
7	11 50 6.43	2 26 11.1	.9576563	22 43.8	78 26 57.5	3 41 41.4	.4879751
8	11 53 15.87	2 16 59.1	.9709356	22 43.5	84 45 53.1	4 19 40.0	.4888962

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>North.</div> <div>° ' "</div> <div>9</div> </div>							
Oct. 8	11 53 15.87	2 16 59.1	.9709356	22 43.5	84 45 53.1	4 19 40.0	.4888962
9	11 56 52.24	2 3 16.7	.9838568	22 43.5	91 3 2.2	4 54 17.4	.4907006
10	12 0 52.71	1 45 23.8	.9963443	22 43.9	97 16 56.7	5 25 5.3	.4933493
<div> <div>°</div> <div>South.</div> <div>9</div> </div>							
11	12 5 14.55	1 23 43.7	.0083407	22 44.6	103 26 13.7	5 51 42.8	.4967855
12	12 9 55.08	0 58 38.9	.0198047	22 45.6	109 29 37.8	6 13 57.0	.5009401
13	12 14 51.75	0 30 32.1	.0307121	22 46.8	115 26 3.8	6 31 42.7	.5057333
14	12 20 2.23	0 0 14.3	.0410479	22 48.2	121 14 37.3	6 45 2.0	.5110802
15	12 25 24.37	0 33 19.2	.0508089	22 49.8	126 54 35.2	6 54 2.8	.5168927
16	12 30 56.30	1 8 22.8	.0600007	22 51.6	132 25 26.1	6 58 58.2	.5230839
17	12 36 36.34	1 45 6.5	.0686345	22 53.4	137 46 49.7	7 0 4.4	.5295690
18	12 42 23.04	2 23 13.2	.0767261	22 55.3	142 58 35.1	6 57 40.5	.5362702
19	12 48 15.16	3 2 27.7	.0842953	22 57.3	148 0 40.6	6 52 6.3	.5431140
20	12 54 11.64	3 42 35.7	.0913641	22 59.4	152 53 11.6	6 43 42.4	.5500347
21	13 0 11.60	4 23 24.9	.0979552	23 1.5	157 36 19.7	6 32 48.8	.5569739
22	13 6 14.32	5 4 44.3	.1040918	23 3.6	162 10 21.3	6 19 44.8	.5638804
23	13 12 19.22	5 46 23.8	.1097974	23 5.8	166 35 36.3	6 4 48.4	.5707100
24	13 18 25.80	6 28 14.7	.1150948	23 8.0	170 52 27.4	5 48 16.2	.5774248
25	13 24 33.69	7 10 9.3	.1200062	23 10.2	175 1 18.7	5 30 23.4	.5839930
26	13 30 42.61	7 52 0.5	.1245521	23 12.4	179 2 36.2	5 11 23.5	.5903878
27	13 36 52.32	8 33 42.6	.1287528	23 14.6	182 56 45.1	4 51 28.6	.5965873
28	13 43 2.67	9 15 9.9	.1326264	23 16.9	186 44 11.5	4 30 49.3	.6025735
29	13 49 13.55	9 56 18.1	.1361904	23 19.1	190 25 20.9	4 9 35.2	.6083318
30	13 55 24.90	10 37 2.6	.1394608	23 21.4	194 0 38.3	3 47 54.4	.6138509
31	14 1 36.66	11 17 19.9	.1424525	23 23.7	197 30 28.1	3 25 54.0	.6191216
Nov. 1	14 7 48.86	11 57 6.5	.1451791	23 25.9	200 55 13.7	3 3 40.2	.6241376
2	14 14 1.48	12 36 19.4	.1476526	23 28.2	204 15 17.5	2 41 18.3	.6288928
3	14 20 14.56	13 14 56.0	.1498849	23 30.5	207 31 1.3	2 18 53.1	.6333843
4	14 26 28.16	13 52 53.7	.1518861	23 32.8	210 42 45.7	1 56 28.3	.6376097
5	14 32 42.32	14 30 10.4	.1536655	23 35.1	213 50 50.2	1 34 7.6	.6415673
6	14 38 57.11	15 6 43.9	.1552317	23 37.4	216 55 33.9	1 11 53.8	.6452560
7	14 45 12.62	15 42 32.3	.1565921	23 39.8	219 57 14.6	0 49 49.5	.6486762
8	14 51 28.90	16 17 34.0	.1577531	23 42.1	222 56 9.5	0 27 56.8	.6518274
9	14 57 46.04	16 51 47.0	.1587213	23 44.5	225 52 35.4	0 6 17.9	.6547113
<div> <div>°</div> <div>South.</div> <div>9</div> </div>							
10	15 4 4.12	17 25 9.7	.1595015	23 46.8	228 46 47.8	0 15 5.7	.6573273
11	15 10 23.23	17 57 40.9	.1600984	23 49.2	231 39 1.8	0 36 12.5	.6596774
12	15 16 43.43	18 29 18.8	.1605156	23 51.7	234 29 32.2	0 57 1.0	.6617620
13	15 23 4.80	19 0 2.1	.1607563	23 54.1	237 18 32.9	1 17 30.4	.6635822
14	15 29 27.41	19 29 49.2	.1608234	23 56.5	240 6 17.9	1 37 38.4	.6651393
15	15 35 51.33	19 58 38.9	.1607185	23 59.0	242 53 0.2	1 17 25.1	.6664339
16	15 42 16.61	20 26 29.4	.1604430	*	245 38 52.9	2 16 49.1	.6674669
17	15 48 43.29	20 53 20.3	.1599977	0 1.5	248 24 8.8	2 35 49.2	.6682387
18	15 55 11.43	21 19 9.1	.1593831	0 4.1	251 9 0.4	2 54 24.5	.6687501
19	16 1 41.03	21 43 54.9	.1585985	0 6.6	253 53 39.9	3 12 33.9	.6690013

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South. ° ' "</i>	<i>9</i>
Nov. 19	16 14 1.03	21 43 54.9	1585985	0 6.6	253 53 39.9	3 12 33.9	6690013
20	16 8 12.13	22 7 36.2	1576432	0 9.2	256 38 19.7	3 30 16.2	6689927
21	16 14 44.73	22 30 11.7	1565159	0 11.8	259 23 11.9	3 47 30.3	6687239
22	16 21 18.82	22 51 39.8	1552148	0 14.4	262 8 28.9	4 14 9	6681949
23	16 27 54.39	23 11 59.2	1537374	0 17.1	264 54 22.9	4 20 28.6	6674054
24	16 34 31.39	23 31 8.6	1520805	0 19.8	267 41 6.0	4 36 9.9	6663550
25	16 41 9.80	23 49 6.2	1502408	0 22.5	270 28 51.1	4 51 17.2	6650427
26	16 47 49.51	24 5 50.9	1482144	0 25.2	273 17 50.7	5 5 48.7	6634677
27	16 54 30.48	24 21 21.0	1459963	0 28.0	276 8 17.9	5 19 42.5	6616298
28	17 1 12.55	24 35 35.3	1435811	0 30.7	279 0 25.9	5 32 56.3	6595273
29	17 7 55.63	24 48 32.2	1409632	0 33.5	281 54 28.3	5 45 27.6	6571594
30	17 14 39.55	25 0 10.3	1381357	0 36.3	284 50 39.3	5 57 14.1	6545253
Dec. 1	17 21 24.12	25 10 28.0	1350913	0 39.1	287 49 13.2	6 8 12.5	6516236
2	17 28 9.12	25 19 24.1	1318221	0 41.9	290 50 25.2	6 18 19.7	6484541
3	17 34 54.30	25 26 57.6	1283192	0 44.7	293 54 30.6	6 27 32.3	6450159
4	17 41 39.39	25 33 6.8	1245727	0 47.5	297 1 45.8	6 35 46.2	6413088
5	17 48 24.07	25 37 50.6	1205727	0 50.4	300 12 27.4	6 42 57.2	6373332
6	17 55 7.95	25 41 8.1	1163075	0 53.2	303 26 53.0	6 49 0.7	6330898
7	18 1 50.63	25 42 58.2	1117652	0 55.9	306 45 20.6	6 53 51.2	6285802
8	18 8 31.63	25 43 20.1	1069325	0 58.7	310 8 9.1	6 57 23.4	6238073
9	18 15 10.41	25 42 13.1	1017954	1 1.4	313 35 38.0	6 59 31.2	6187740
10	18 21 46.38	25 39 36.9	9633391	1 4.0	317 8 7.7	7 0 8.0	6134863
11	18 28 18.85	25 35 31.2	9095476	1 6.6	320 45 58.9	6 59 6.8	6079507
12	18 34 47.05	25 29 56.3	8444038	1 9.2	324 29 33.5	6 56 20.0	6021768
13	18 41 10.08	25 22 52.6	7789006	1 11.6	328 19 12.9	6 51 39.8	5961756
14	18 47 26.96	25 14 21.2	709897	1 13.9	332 15 20.0	6 44 57.7	5899620
15	18 53 36.57	25 4 23.6	6636827	1 16.1	336 18 17.2	6 36 5.3	5835550
16	18 59 37.65	24 53 1.8	559507	1 18.2	340 28 27.0	6 24 53.8	5769761
17	19 5 28.70	24 40 18.5	477761	1 20.1	344 46 11.2	6 11 14.7	5702523
18	19 11 8.16	24 26 17.6	391424	1 21.8	349 11 51.0	5 54 59.5	5634165
19	19 16 34.15	24 11 3.7	300341	1 23.3	353 45 46.3	5 36 0.9	5565062
20	19 21 44.63	23 54 42.1	204388	1 24.5	358 28 14.9	5 14 12.1	5495667
21	19 26 37.31	23 37 20.1	10103505	1 25.4	3 19 31.5	4 49 28.5	5426495
			9				
22	19 31 9.59	23 19 6.0	9997673	1 26.0	8 19 47.9	4 21 47.3	5358130
23	19 35 18.70	23 0 8.6	9886973	1 26.2	13 29 10.5	3 51 8.7	5291245
24	19 39 1.53	22 40 39.5	9771588	1 25.9	18 47 40.7	3 17 36.8	5226566
25	19 42 14.76	22 20 51.6	9651855	1 25.2	24 15 12.6	2 41 19.7	5164887
26	19 44 54.91	22 0 58.4	9528279	1 23.9	29 51 32.8	2 30 7	5107049
27	19 46 58.39	21 41 15.6	9401587	1 21.9	35 36 18.8	1 21 28.6	5053931
28	19 48 21.62	21 21 59.0	9272765	1 19.3	41 28 58.3	0 38 38.1	5006404
			9				
29	19 49 1.23	21 3 25.7	9143087	1 16.0	47 28 48.3	0 5 30.3	4965322
30	19 48 54.31	20 45 52.0	9014140	1 11.9	53 34 55.7	0 50 21.1	4931471
31	19 47 58.63	20 29 33.8	8887840	1 7.0	59 46 16.5	1 35 14.1	4905539
32	19 46 13.10	20 14 44.7	8766399	1 1.3	66 1 37.5	2 19 26.5	4888080

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>South.</div> <div>9</div> </div> <div> <div>h m</div> <div>° ' "</div> <div>North.</div> <div>9</div> </div> </div>							
Jan. 1	15 33 28.67	16 16 17.9	.9296549	20 52.4	157 48 19.7	3 21 45.5	.8567340
2	15 38 2.48	16 33 2.9	.9334158	20 53.0	159 25 46.4	3 22 26.6	.8567741
3	15 42 37.81	16 49 30.9	.9371369	20 53.7	161 3 12.1	3 22 57.9	.8568162
4	15 47 14.64	17 5 41.2	.9408187	20 54.4	162 40 36.8	3 23 19.6	.8568603
5	15 51 52.96	17 21 32.8	.9444615	20 55.1	164 18 0.3	3 23 31.5	.8569063
6	15 56 32.76	17 37 4.9	.9480660	20 55.9	165 55 22.5	3 23 33.6	.8569542
7	16 1 14.00	17 52 16.6	.9516327	20 56.6	167 32 43.4	3 23 25.9	.8570040
8	16 5 56.65	18 7 7.2	.9551621	20 57.4	169 10 2.9	3 23 8.4	.8570557
9	16 10 40.69	18 21 35.7	.9586548	20 58.2	170 47 20.9	3 22 41.2	.8571091
10	16 15 26.10	18 35 41.3	.9621115	20 59.1	172 24 37.3	3 22 4.4	.8571643
11	16 20 12.85	18 49 23.3	.9655327	20 59.9	174 1 52.1	3 21 17.8	.8572212
12	16 25 0.91	19 2 40.8	.9689189	21 0.8	175 39 5.2	3 20 21.6	.8572798
13	16 29 50.27	19 15 33.1	.9722708	21 1.7	177 16 16.5	3 19 15.8	.8573400
14	16 34 40.89	19 27 59.4	.9755889	21 2.6	178 53 26.0	3 18 0.5	.8574017
15	16 39 32.76	19 39 59.1	.9788739	21 3.6	180 30 33.5	3 16 35.8	.8574650
16	16 44 25.84	19 51 31.4	.9821262	21 4.5	182 7 39.0	3 15 1.7	.8575297
17	16 49 20.13	20 2 35.7	.9853464	21 5.5	183 44 42.5	3 13 18.3	.8575958
18	16 54 15.58	20 13 11.3	.9885348	21 6.5	185 21 43.8	3 11 25.7	.8576632
19	16 59 12.15	20 23 17.5	.9916921	21 7.5	186 58 42.9	3 9 24.0	.8577320
20	17 4 9.80	20 32 53.8	.9948185	21 8.6	188 35 39.8	3 7 13.3	.8578020
21	17 9 8.53	20 41 59.5	.9979147	21 9.6	190 12 34.3	3 4 53.8	.8578732
22	17 14 8.31	20 50 33.9	.0009808	21 10.7	191 49 26.5	3 2 25.5	.8579455
23	17 19 9.07	20 58 36.6	.0040172	21 11.8	193 26 16.2	2 59 48.6	.8580188
24	17 24 10.78	21 6 6.9	.0070241	21 12.9	195 3 3.5	2 57 3.3	.8580932
25	17 29 13.40	21 13 4.3	.0100018	21 14.0	196 39 48.3	2 54 9.6	.8581685
26	17 34 16.88	21 19 28.4	.0129506	21 15.1	198 16 30.5	2 51 7.7	.8582447
27	17 39 21.18	21 25 18.6	.0158708	21 16.2	199 53 10.2	2 47 57.8	.8583218
28	17 44 26.25	21 30 34.5	.0187626	21 17.4	201 29 47.3	2 44 40.0	.8583996
29	17 49 32.06	21 35 15.6	.0216265	21 18.6	203 6 21.7	2 41 14.5	.8584781
30	17 54 38.54	21 39 21.6	.0244625	21 19.7	204 42 53.5	2 37 41.4	.8585573
31	17 59 45.65	21 42 52.2	.0272708	21 20.9	206 19 22.6	2 34 1.0	.8586371
Feb. 1	18 4 53.33	21 45 46.9	.0300518	21 22.1	207 55 48.9	2 30 13.4	.8587174
2	18 10 1.53	21 48 5.5	.0328055	21 23.3	209 32 12.6	2 26 18.8	.8587981
3	18 15 10.20	21 49 47.8	.0355323	21 24.5	211 8 33.6	2 22 17.4	.8588793
4	18 20 19.27	21 50 53.4	.0382325	21 25.8	212 44 51.9	2 18 9.3	.8589607
5	18 25 28.68	21 51 22.2	.0409063	21 27.0	214 21 7.4	2 13 54.9	.8590425
6	18 30 38.38	21 51 14.0	.0435540	21 28.2	215 57 20.2	2 9 34.3	.8591245
7	18 35 48.30	21 50 28.7	.0461760	21 29.4	217 33 30.2	2 5 7.7	.8592066
8	18 40 58.39	21 49 6.1	.0487727	21 30.6	219 9 37.6	2 0 35.3	.8592887
9	18 46 8.59	21 47 6.2	.0513445	21 31.9	220 45 42.2	1 55 57.4	.8593709
10	18 51 18.84	21 44 28.9	.0538917	21 33.1	222 21 44.1	1 51 14.2	.8594530
11	18 56 29.08	21 41 14.1	.0564149	21 34.3	223 57 43.3	1 46 25.9	.8595350

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>9</i>
Feb. 11	18 56 29.08	21 41 14.1	0.564149	21 34.3	223 57 43.3	1 46 25.9	8.595350
12	19 1 39.27	21 37 22.0	0.589142	21 35.5	225 33 39.9	1 41 32.7	8.596168
13	19 6 49.35	21 32 52.4	0.613902	21 36.8	227 9 33.8	1 36 34.9	8.596983
14	19 11 59.28	21 27 45.5	0.638432	21 38.0	228 45 25.1	1 31 32.7	8.597795
15	19 17 9.02	21 22 1.3	0.662735	21 39.2	230 21 13.7	1 26 26.3	8.598604
16	19 22 18.50	21 15 40.1	0.686814	21 40.4	231 56 59.8	1 21 16.0	8.599408
17	19 27 27.68	21 8 41.8	0.710672	21 41.6	233 32 43.4	1 16 2.1	8.600207
18	19 32 36.52	21 1 6.7	0.734311	21 42.8	235 8 24.4	1 10 44.8	8.601001
19	19 37 44.98	20 52 55.1	0.757734	21 44.0	236 44 3.0	1 5 24.3	8.601789
20	19 42 53.00	20 44 7.0	0.780944	21 45.2	238 19 39.2	1 0 0.8	8.602569
21	19 48 0.55	20 34 42.8	0.803942	21 46.4	239 55 13.0	0 54 34.7	8.603342
22	19 53 7.59	20 24 42.7	0.826731	21 47.6	241 30 44.5	0 49 6.2	8.604107
23	19 58 14.09	20 14 7.0	0.849312	21 48.7	243 6 13.6	0 43 35.5	8.604864
24	20 3 20.00	20 2 56.1	0.871687	21 49.9	244 41 40.6	0 38 2.9	8.605612
25	20 8 25.29	19 51 10.2	0.893857	21 51.0	246 17 5.4	0 32 28.7	8.606350
26	20 13 29.93	19 38 49.8	0.915824	21 52.1	247 52 28.1	0 26 53.1	8.607077
27	20 18 33.89	19 25 55.2	0.937589	21 53.2	249 27 48.8	0 21 26.4	8.607794
28	20 23 37.13	19 12 26.8	0.959152	21 54.3	251 3 7.4	0 15 38.8	8.608499
29	20 28 39.64	18 58 25.2	0.980514	21 55.4	252 38 24.2	0 10 0.6	8.609192
Mar. 1	20 33 41.38	18 43 50.7	1.001677	21 56.5	254 13 39.1	0 4 22.0	8.609873
2	20 38 42.33	18 28 43.9	1.022641	21 57.6	255 48 52.2	0 1 16.6	8.610541
3	20 43 42.46	18 13 5.2	1.043407	21 58.6	257 24 3.6	0 6 55.1	8.611196
4	20 48 41.74	17 56 55.2	1.063976	21 59.6	258 59 13.3	0 12 33.2	8.611836
5	20 53 40.16	17 40 14.5	1.084349	22 0.7	260 34 21.4	0 18 10.6	8.612462
6	20 58 37.70	17 23 3.6	1.104528	22 1.7	262 9 28.0	0 23 47.1	8.613073
7	21 3 34.34	17 5 23.0	1.124515	22 2.6	263 44 33.2	0 29 22.4	8.613668
8	21 8 30.06	16 47 13.4	1.144313	22 3.6	265 19 36.9	0 34 56.3	8.614247
9	21 13 24.85	16 28 35.3	1.163924	22 4.6	266 54 39.3	0 40 28.5	8.614810
10	21 18 18.71	16 9 29.3	1.183349	22 5.5	268 29 40.5	0 45 58.7	8.615357
11	21 23 11.63	15 49 56.1	1.202592	22 6.5	270 4 40.5	0 51 26.8	8.615886
12	21 28 3.60	15 29 56.2	1.221654	22 7.4	271 39 39.4	0 56 52.4	8.616398
13	21 32 54.63	15 9 30.3	1.240537	22 8.3	273 14 37.3	1 2 15.3	8.616892
14	21 37 44.71	14 48 38.9	1.259244	22 9.1	274 49 34.2	1 7 35.4	8.617367
15	21 42 33.86	14 27 22.7	1.277776	22 10.0	276 24 30.3	1 12 52.2	8.617824
16	21 47 22.07	14 5 42.4	1.296137	22 10.8	277 59 25.5	1 18 5.7	8.618262
17	21 52 9.37	13 43 38.5	1.314328	22 11.7	279 34 20.0	1 23 15.5	8.618681
18	21 56 55.75	13 21 11.8	1.332352	22 12.5	281 9 13.8	1 28 21.5	8.619081
19	22 1 41.23	12 58 22.8	1.350208	22 13.3	282 44 7.0	1 33 23.4	8.619460
20	22 6 25.81	12 35 12.3	1.367899	22 14.1	284 18 59.8	1 38 20.9	8.619820
21	22 11 9.52	12 11 40.9	1.385425	22 14.9	285 53 52.0	1 43 13.9	8.620159
22	22 15 52.37	11 47 49.2	1.402788	22 15.6	287 28 43.9	1 48 2.1	8.620477
23	22 20 34.39	11 23 37.9	1.419989	22 16.4	289 3 35.5	1 52 45.4	8.620774

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>9</i>
Mar. 23	22 20 34.39	11 23 37.9	1419989	22 16.4	289 3 35.5	1 52 45.4	.8620774
24	22 25 15.59	10 59 7.6	1437027	22 17.1	290 38 26.8	1 57 23.4	.8621050
25	22 29 56.00	10 34 19.0	1453905	22 17.8	292 13 18.0	2 1 56.1	.8621305
26	22 34 35.64	10 9 12.8	1470621	22 18.5	293 48 9.1	2 6 23.2	.8621538
27	22 39 14.54	9 43 49.7	1487175	22 19.2	295 23 0.1	2 10 44.5	.8621750
28	22 43 52.72	9 18 10.3	1503569	22 19.9	296 57 51.2	2 14 59.8	.8621939
29	22 48 30.20	8 52 15.3	1519801	22 20.6	298 32 42.3	2 19 9.0	.8622107
30	22 53 7.01	8 26 5.5	1535871	22 21.2	300 7 33.6	2 23 11.7	.8622252
31	22 57 43.18	7 59 41.5	1551780	22 21.9	301 42 25.1	2 27 8.0	.8622375
Apr. 1	23 2 18.72	7 33 4.0	1567529	22 22.5	303 17 16.8	2 30 57.5	.8622476
2	23 6 53.67	7 6 13.7	1583118	22 23.1	304 52 8.8	2 34 40.1	.8622555
3	23 11 28.05	6 39 11.4	1598546	22 23.8	306 27 1.2	2 38 15.7	.8622611
4	23 16 1.90	6 11 57.7	1613814	22 24.4	308 1 54.0	2 41 44.0	.8622644
5	23 20 35.23	5 44 33.3	1628922	22 25.0	309 36 47.2	2 45 4.9	.8622655
6	23 25 8.09	5 16 58.9	1643869	22 25.6	311 11 41.0	2 48 18.3	.8622643
7	23 29 40.49	4 49 15.2	1658658	22 26.2	312 46 35.4	2 51 24.0	.8622609
8	23 34 12.48	4 21 23.0	1673289	22 26.8	314 21 30.4	2 54 21.9	.8622553
9	23 38 44.08	3 53 22.8	1687764	22 27.3	315 56 26.0	2 57 11.9	.8622473
10	23 43 15.33	3 25 15.4	1702085	22 27.9	317 31 22.4	2 59 53.8	.8622371
11	23 47 46.26	2 57 1.5	1716254	22 28.5	319 6 19.6	3 2 27.4	.8622247
12	23 52 16.91	2 28 41.7	1730270	22 29.0	320 41 17.6	3 4 52.7	.8622101
13	23 56 47.32	2 0 16.7	1744137	22 29.6	322 16 16.4	3 7 9.6	.8621932
14	0 1 17.52	1 31 47.2	1757855	22 30.2	323 51 16.0	3 9 17.9	.8621742
15	0 5 47.55	1 3 13.9	1771425	22 30.8	325 26 16.6	3 11 17.6	.8621530
16	0 10 17.44	0 34 37.4	1784847	22 31.3	327 1 18.1	3 13 8.6	.8621295
17	0 14 47.24	0 5 58.4	1798123	22 31.8	328 36 20.6	3 14 50.7	.8621040
		<i>North.</i>					
18	0 19 16.98	0 22 42.3	1811253	22 32.4	330 11 24.1	3 16 23.9	.8620763
19	0 23 46.70	0 51 24.2	1824237	22 33.0	331 46 28.6	3 17 48.1	.8620466
20	0 28 16.45	1 20 6.6	1837076	22 33.5	333 21 34.2	3 19 3.3	.8620147
21	0 32 46.27	1 48 48.7	1849770	22 34.0	334 56 40.9	3 20 9.4	.8619808
22	0 37 16.19	2 17 30.0	1862319	22 34.6	336 31 48.7	3 21 6.3	.8619448
23	0 41 46.27	2 46 9.7	1874722	22 35.2	338 6 57.6	3 21 54.1	.8619068
24	0 46 16.53	3 14 47.3	1886981	22 35.7	339 42 7.7	3 22 32.5	.8618668
25	0 50 47.01	3 43 21.9	1899094	22 36.3	341 17 18.9	3 23 1.7	.8618248
26	0 55 17.77	4 11 53.0	1911062	22 36.9	342 52 31.4	3 23 21.6	.8617809
27	0 59 48.83	4 40 19.7	1922884	22 37.5	344 27 45.1	3 23 32.1	.8617351
28	1 4 20.23	5 8 41.5	1934559	22 38.0	346 3 0.1	3 23 33.3	.8616874
29	1 8 52.01	5 36 57.6	1946087	22 38.6	347 38 16.3	3 23 25.1	.8616379
30	1 13 24.21	6 5 7.3	1957467	22 39.2	349 13 33.8	3 23 7.5	.8615866
May 1	1 17 56.86	6 33 9.9	1968699	22 39.9	350 48 52.7	3 22 40.7	.8615336
2	1 22 30.00	7 1 4.7	1979781	22 40.5	352 24 12.8	3 22 4.5	.8614788
3	1 27 3.65	7 28 51.0	1990713	22 41.1	353 59 34.3	3 21 18.9	.8614224

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>North.</div> <div>o ' "</div> <div>o</div> </div> <div> <div>h m</div> <div>h m</div> <div>o ' "</div> <div>South.</div> <div>o ' "</div> <div>9</div> </div> </div>							
May 3	1 27 3.65	7 28 51.0	.1990713	22 41.1	353 59 34.3	3 21 18.9	.8614224
4	1 31 37.86	7 56 28.1	.2001494	22 41.7	355 34 57.1	3 20 24.1	.8613644
5	1 36 12.66	8 23 55.3	.2012126	22 42.4	357 10 21.3	3 19 20.0	.8613048
6	1 40 48.07	8 51 11.9	.2022607	22 43.0	358 45 46.9	3 18 6.7	.8612436
7	1 45 24.14	9 18 17.1	.2032939	22 43.7	0 21 13.8	3 16 44.3	.8611809
8	1 50 0.89	9 45 10.2	.2043122	22 44.4	1 56 42.2	3 15 12.7	.8611168
9	1 54 38.35	10 11 50.5	.2053157	22 45.1	3 32 11.9	3 13 32.1	.8610513
10	1 59 16.56	10 38 17.3	.2063045	22 45.8	5 7 43.1	3 11 42.6	.8609845
11	2 3 55.53	11 4 29.9	.2072786	22 46.5	6 43 15.6	3 9 44.1	.8609163
12	2 8 35.31	11 30 27.6	.2082381	22 47.3	8 18 49.6	3 7 36.8	.8608469
13	2 13 15.91	11 56 9.7	.2091831	22 48.0	9 54 25.1	3 5 20.8	.8607763
14	2 17 57.38	12 21 35.5	.2101137	22 48.8	11 30 2.1	3 2 56.1	.8607045
15	2 22 39.73	12 46 44.2	.2110298	22 49.5	13 54 40.5	3 0 22.9	.8606317
16	2 27 22.99	13 11 35.1	.2119316	22 50.3	14 41 20.4	2 57 41.3	.8605578
17	2 32 7.20	13 36 7.4	.2128190	22 51.1	16 17 1.8	2 54 51.5	.8604830
18	2 36 52.36	14 0 20.6	.2136921	22 52.0	17 52 44.7	2 51 53.4	.8604073
19	2 41 38.52	14 24 13.8	.2145509	22 52.8	19 28 29.1	2 48 47.3	.8603307
20	2 46 25.69	14 47 46.4	.2153954	22 53.7	21 4 15.0	2 45 33.3	.8602533
21	2 51 13.89	15 10 57.7	.2162256	22 54.5	22 40 2.4	2 42 11.5	.8601752
22	2 56 3.14	15 33 46.9	.2170416	22 55.4	24 15 51.4	2 38 42.1	.8600964
23	3 0 53.46	15 56 13.3	.2178433	22 56.4	25 51 41.9	2 35 5.2	.8600170
24	3 5 44.86	16 18 16.3	.2186307	22 57.3	27 27 34.0	2 31 21.0	.8599370
25	3 10 37.37	16 39 55.1	.2194038	22 58.3	29 3 27.6	2 27 29.7	.8598565
26	3 15 30.98	17 1 8.9	.2201623	22 59.2	30 39 22.8	2 23 31.5	.8597756
27	3 20 25.72	17 21 57.2	.2209063	23 0.2	32 15 19.6	2 19 26.4	.8596943
28	3 25 21.59	17 42 19.1	.2216355	23 1.2	33 51 18.0	2 15 14.7	.8596127
29	3 30 18.59	18 2 14.0	.2223500	23 2.2	35 27 18.0	2 10 56.6	.8595308
30	3 35 16.72	18 21 41.2	.2230495	23 3.3	37 3 19.7	2 6 32.3	.8594488
31	3 40 15.99	18 40 39.9	.2237342	23 4.3	38 39 22.9	2 2 1.9	.8593667
June 1	3 45 16.38	18 59 9.4	.2244039	23 5.4	40 15 27.8	1 57 25.8	.8592845
2	3 50 17.90	19 17 9.2	.2250585	23 6.5	41 51 34.4	1 52 44.1	.8592023
3	3 55 20.54	19 34 38.5	.2256980	23 7.6	43 27 42.6	1 47 56.9	.8591202
4	4 0 24.27	19 51 36.6	.2263225	23 8.8	45 3 52.5	1 43 4.6	.8590382
5	4 5 29.10	20 8 3.0	.2269319	23 9.9	46 40 4.1	1 38 7.3	.8589564
6	4 10 35.01	20 23 57.0	.2275262	23 11.1	48 16 17.3	1 33 5.3	.8588749
7	4 15 41.97	20 39 18.0	.2281055	23 12.3	49 52 32.2	1 27 58.8	.8587937
8	4 20 49.96	20 54 5.3	.2286698	23 13.5	51 28 48.9	1 22 48.1	.8587129
9	4 25 58.96	21 18 18.3	.2292192	23 14.7	53 5 7.3	1 17 33.4	.8586326
10	4 31 8.95	21 21 56.5	.2297538	23 16.0	54 41 27.4	1 12 14.9	.8585528
11	4 36 19.90	21 34 59.3	.2302736	23 17.2	56 17 49.2	1 6 52.9	.8584736
12	4 41 31.78	21 47 26.1	.2307786	23 18.5	57 54 12.8	1 1 27.6	.8583951
13	4 46 44.57	21 59 16.4	.2312689	23 19.8	59 30 38.2	0 55 59.3	.8583173

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>9</i>
June 13	4 46 44.57	21 59 16.4	2321689	23 19.8	59 30 38.2	0 55 59.3	8583173
14	4 51 58.24	22 10 29.8	2317445	23 21.1	61 7 5.3	0 50 28.2	8582403
15	4 57 12.75	22 21 5.6	2322056	23 22.4	62 43 34.2	0 44 54.6	8581641
16	5 2 28.07	22 31 3.5	2326520	23 23.7	64 20 4.8	0 39 18.8	8580888
17	5 7 44.16	22 40 23.0	2330839	23 25.1	65 56 37.3	0 33 41.0	8580145
18	5 13 0.97	22 49 3.6	2335012	23 26.4	67 33 11.5	0 28 1.5	8579412
19	5 18 18.48	22 57 5.0	2339041	23 27.8	69 9 47.5	0 22 20.6	8578690
20	5 23 36.62	23 4 26.8	2342925	23 29.2	70 46 25.3	0 16 38.5	8577979
21	5 28 55.37	23 11 8.7	2346665	23 30.5	72 23 4.9	0 10 55.5	8577280
22	5 34 14.67	23 17 10.2	2350259	23 31.9	73 59 46.3	0 5 11.8	8576593
23	5 39 34.47	23 22 31.1	2353708	23 33.3	75 36 29.5	North. 0 32.2	8575920
24	5 44 54.73	23 27 11.1	2357011	23 34.7	77 13 14.5	0 6 16.3	8575260
25	5 50 15.40	23 31 9.9	2360167	23 36.1	78 50 1.3	0 12 0.1	8574614
26	5 55 36.42	23 34 27.3	2363176	23 37.5	80 26 49.8	0 17 43.5	8573983
27	6 0 57.74	23 37 3.1	2366036	23 39.0	82 3 40.1	0 23 26.2	8573366
28	6 6 19.30	23 38 57.1	2368747	23 40.4	83 40 32.2	0 29 7.8	8572766
29	6 11 41.04	23 40 9.3	2371307	23 41.8	85 17 26.0	0 34 48.2	8572182
30	6 17 2.91	23 40 39.5	2373717	23 43.2	86 54 21.5	0 40 27.0	8571615
July 1	6 22 24.85	23 40 27.7	2375975	23 44.7	88 31 18.7	0 46 4.0	8571064
2	6 27 46.79	23 39 33.8	2378083	23 46.1	90 8 17.6	0 51 38.8	8570502
3	6 33 8.68	23 37 57.8	2380039	23 47.5	91 45 18.2	0 57 11.2	8570017
4	6 38 30.46	23 35 39.8	2381844	23 48.9	93 22 20.4	1 2 41.0	8569520
5	6 43 52.06	23 32 39.8	2383498	23 50.3	94 59 24.2	1 8 7.9	8569043
6	6 49 13.43	23 28 57.9	2385002	23 51.7	96 36 29.7	1 13 31.5	8568584
7	6 54 34.51	23 24 34.2	2386355	23 53.1	98 13 36.8	1 18 51.7	8568145
8	6 59 55.23	23 19 28.8	2387559	23 54.5	99 50 45.4	1 24 8.2	8567726
9	7 5 15.56	23 13 42.0	2388613	23 55.9	101 27 55.6	1 29 20.8	8567327
10	7 10 35.42	23 7 13.8	2389518	23 57.3	103 5 7.3	1 34 29.1	8566949
11	7 15 54.77	23 0 4.5	2390275	23 58.7	104 42 20.4	1 39 32.9	8566592
12	7 21 13.57	22 52 14.5	2390885	* *	106 19 35.0	1 44 32.0	8566256
13	7 26 31.76	22 43 43.9	2391347	0 0.1	107 56 50.9	1 49 26.1	8565941
14	7 31 49.29	22 34 33.2	2391664	0 1.4	109 34 8.2	1 54 15.0	8565648
15	7 37 6.13	22 24 42.6	2391835	0 2.7	111 11 26.8	1 58 58.5	8565377
16	7 42 22.22	22 14 12.6	2391862	0 4.1	112 48 46.7	2 3 36.3	8565128
17	7 47 37.53	22 3 3.5	2391745	0 5.4	114 26 7.2	8 8.2	8564902
18	7 52 52.02	21 51 15.7	2391485	0 6.7	116 3 30.0	2 12 33.9	8564698
19	7 58 5.65	21 38 49.6	2391083	0 8.0	117 40 53.3	2 16 53.3	8564517
20	8 3 18.38	21 25 45.7	2390539	0 9.2	119 18 17.6	2 21 6.1	8564359
21	8 8 30.20	21 12 4.5	2389852	0 10.5	120 55 42.9	2 25 12.1	8564224
22	8 13 41.06	20 57 46.4	2389024	0 11.7	122 33 9.1	2 29 11.2	8564112
23	8 18 50.95	20 42 51.9	2388054	0 13.0	124 10 36.1	2 33 3.1	8564023
24	8 23 59.84	20 27 21.7	2386940	0 14.2	125 48 3.9	2 36 47.7	8563958

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North.</i> <i>° ' "</i>	<i>9</i>
July 24	8 23 59.84	20 27 21.7	2386940	0 14.2	125 48 3.9	2 36 47.7	8563958
25	8 29 7.71	20 11 16.1	2385683	0 15.4	127 25 32.4	2 40 24.7	8563916
26	8 34 14.54	19 54 35.9	2384282	0 16.5	129 3 1.6	2 43 54.0	8563897
27	8 39 20.31	19 37 21.5	2382736	0 17.7	130 40 31.3	2 47 15.4	8563902
28	8 44 25.00	19 19 33.7	2381044	0 18.8	132 18 1.5	2 50 28.7	8563930
29	8 49 28.60	19 1 13.0	2379207	0 19.9	133 55 32.2	2 53 33.8	8563982
30	8 54 31.10	18 42 20.0	2377224	0 21.0	135 33 3.2	2 56 30.5	8564057
31	8 59 32.48	18 22 55.4	2375095	0 22.1	137 10 34.5	2 59 18.7	8564155
Aug. 1	9 4 32.74	18 3 0.0	2372820	0 23.2	138 48 6.0	3 1 58.3	8564276
2	9 9 31.87	17 42 34.2	2370400	0 24.2	140 25 37.6	3 4 29.0	8564420
3	9 14 29.87	17 21 38.9	2367834	0 25.3	142 3 9.2	3 6 50.9	8564588
4	9 19 26.73	17 0 14.7	2365124	0 26.3	143 40 40.8	3 9 3.8	8564778
5	9 24 22.45	16 38 22.3	2362269	0 27.3	145 18 12.3	3 11 7.5	8564991
6	9 29 17.05	16 16 2.3	2359270	0 28.2	146 55 43.5	3 13 2.1	8565226
7	9 34 10.51	15 53 15.6	2356127	0 29.2	148 33 14.4	3 14 47.3	8565484
8	9 39 2.86	15 30 2.7	2352840	0 30.1	150 10 44.9	3 16 23.1	8565764
9	9 43 54.10	15 6 24.5	2349410	0 31.0	151 48 14.9	3 17 49.5	8566066
10	9 48 44.24	14 42 21.6	2345838	0 31.9	153 25 44.3	3 19 6.3	8566389
11	9 53 33.30	14 17 54.8	2342126	0 32.8	155 3 13.0	3 20 13.5	8566734
12	9 58 21.29	13 53 4.7	2338275	0 33.6	156 40 40.9	3 21 11.1	8567100
13	10 3 8.24	13 27 52.2	2334286	0 34.5	158 18 8.0	3 21 59.0	8567486
14	10 7 54.16	13 2 17.9	2330160	0 35.3	159 55 34.2	3 22 37.2	8567893
15	10 12 39.07	12 36 22.5	2325897	0 36.1	161 32 59.4	3 23 5.6	8568320
16	10 17 23.00	12 10 6.8	2321499	0 36.9	163 10 23.5	3 23 24.2	8568766
17	10 22 5.97	11 43 31.5	2316965	0 37.7	164 47 46.4	3 23 33.1	8569232
18	10 26 48.02	11 16 37.3	2312298	0 38.4	166 25 8.1	3 23 32.2	8569717
19	10 31 29.17	10 49 24.9	2307497	0 39.2	168 2 28.4	3 23 21.6	8570221
20	10 36 9.45	10 21 55.0	2302563	0 39.9	169 39 47.2	3 23 1.2	8570742
21	10 40 48.90	9 54 8.4	2297496	0 40.6	171 17 4.6	3 22 31.0	8571282
22	10 45 27.55	9 26 5.7	2292295	0 41.3	172 54 20.3	3 21 51.2	8571838
23	10 50 5.44	8 57 47.7	2286960	0 42.0	174 31 34.4	3 21 1.7	8572412
24	10 54 42.60	8 29 15.1	2281490	0 42.7	176 8 46.8	3 20 2.6	8573002
25	10 59 19.06	8 0 28.7	2275885	0 43.3	177 45 57.4	3 18 53.9	8573608
26	11 3 54.87	7 31 29.1	2270145	0 44.0	179 23 6.1	3 17 35.7	8574230
27	11 8 30.04	7 2 17.2	2264269	0 44.6	181 0 12.8	3 16 8.1	8574867
28	11 13 4.62	6 32 53.7	2258258	0 45.3	182 37 17.5	3 14 31.2	8575518
29	11 17 38.65	6 3 19.3	2252110	0 45.9	184 14 20.1	3 12 45.1	8576183
30	11 22 12.15	5 33 34.8	2245827	0 46.5	185 51 20.6	3 10 49.8	8576861
31	11 26 45.17	5 3 40.8	2239407	0 47.1	187 28 18.8	3 8 45.4	8577552
Sept. 1	11 31 17.74	4 33 38.2	2232851	0 47.7	189 5 14.7	3 6 32.1	8578255
2	11 35 49.91	4 3 27.6	2226159	0 48.3	190 42 8.3	3 4 9.9	8578970
3	11 40 21.71	3 33 9.8	2219331	0 48.9	192 18 59.6	3 1 39.0	8579696

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North.</i> <i>° ' "</i>	<i>9</i>
Sept. 3	11 40 21.71	3 33 9.8	.2219331	0 48.9	192 18 59.63	1 39.0	.8579696
4	11 44 53.17	3 2 45.5	.2212368	0 49.5	193 55 48.42	58 59.6	.8580432
5	11 49 24.35	2 32 15.4	.2205270	0 50.1	195 32 34.72	56 11.7	.8581178
6	11 53 55.28	2 1 40.3	.2198037	0 50.6	197 9 18.62	53 15.5	.8581934
7	11 58 26.01	1 31 0.9	.2190670	0 51.2	198 45 59.92	50 11.2	.8582699
8	12 2 56.56	1 0 18.0	.2183170	0 51.8	200 22 38.62	46 58.9	.8583471
9	12 7 26.99	0 29 32.2	.2175538	0 52.3	201 59 14.72	43 38.7	.8584251
		<i>South.</i>					
10	12 11 57.33	0 1 15.6	.2167774	0 52.9	203 35 48.22	40 10.9	.8585038
11	12 16 27.63	0 32 4.8	.2159881	0 53.5	205 12 19.02	36 35.6	.8585832
12	12 20 57.93	1 2 54.6	.2151858	0 54.0	206 48 47.12	32 53.0	.8586631
13	12 25 28.27	1 33 44.3	.2143707	0 54.6	208 25 12.62	29 3.2	.8587435
14	12 29 58.69	2 4 33.2	.2135429	0 55.1	210 1 35.32	25 6.5	.8588244
15	12 34 29.24	2 35 20.6	.2127024	0 55.7	211 37 55.32	21 3.1	.8589056
16	12 38 59.97	3 6 5.8	.2118493	0 56.3	213 14 12.62	16 53.1	.8589871
17	12 43 30.92	3 36 48.0	.2109836	0 56.9	214 50 27.22	12 36.8	.8590689
18	12 48 2.14	4 7 26.6	.2101054	0 57.4	216 26 39.02	8 14.3	.8591508
19	12 52 33.67	4 38 0.7	.2092147	0 58.0	218 2 48.12	3 46.0	.8592329
20	12 57 5.56	5 8 29.7	.2083114	0 58.6	219 38 54.51	59 11.9	.8593150
21	13 1 37.86	5 38 52.9	.2073956	0 59.2	221 14 58.11	54 32.4	.8593970
22	13 6 10.60	6 9 9.4	.2064671	0 59.8	222 50 59.11	49 47.6	.8594790
23	13 10 43.83	6 39 18.6	.2055260	1 0.4	224 26 57.31	44 57.9	.8595609
24	13 15 17.59	7 9 19.6	.2045721	1 1.0	226 2 52.91	40 3.3	.8596425
25	13 19 51.92	7 39 11.7	.2036053	1 1.7	227 38 45.81	35 4.1	.8597239
26	13 24 26.85	8 8 54.2	.2026257	1 2.3	229 14 36.11	30 0.7	.8598049
27	13 29 2.44	8 38 26.3	.2016330	1 3.0	230 50 23.81	24 53.1	.8598855
28	13 33 38.70	9 7 47.3	.2006274	1 3.6	232 26 9.01	19 41.7	.8599657
29	13 38 15.69	9 36 56.4	.1996087	1 4.3	234 1 51.71	14 26.7	.8600454
30	13 42 53.44	10 5 52.7	.1985769	1 5.0	235 37 31.81	9 8.4	.8601245
Oct. 1	13 47 31.99	10 34 35.6	.1975320	1 5.7	237 13 9.61	3 46.9	.8602029
2	13 52 11.36	11 3 4.3	.1964739	1 6.4	238 48 44.90	58 22.7	.8602806
3	13 56 51.59	11 31 17.9	.1954027	1 7.1	240 24 17.90	52 55.8	.8603576
4	14 1 32.72	11 59 15.7	.1943182	1 7.9	241 59 48.70	47 26.6	.8604338
5	14 6 14.78	12 26 56.9	.1932206	1 8.6	243 35 17.20	41 55.3	.8605091
6	14 10 57.78	12 54 20.7	.1921099	1 9.4	245 10 43.50	36 22.2	.8605834
7	14 15 41.77	13 21 26.3	.1909860	1 10.2	246 46 7.60	30 47.6	.8606568
8	14 20 26.76	13 48 12.9	.1898490	1 11.0	248 21 29.60	25 11.6	.8607292
9	14 25 12.78	14 14 39.7	.1886989	1 11.8	249 56 49.70	19 34.6	.8608004
10	14 29 59.86	14 40 45.9	.1875358	1 12.7	251 32 7.70	13 56.8	.8608705
11	14 34 48.01	15 6 30.8	.1863597	1 13.5	253 7 23.80	8 18.4	.8609393
12	14 39 37.27	15 31 53.6	.1851707	1 14.4	254 42 38.10	2 39.8	.8610069
						<i>South.</i>	
13	14 44 27.64	15 56 53.4	.1839689	1 15.3	256 17 50.60	2 58.8	.8610732

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South. ° ' "</i>	<i>9</i>
Oct. 13	14 44 27.64	15 56 53.4	1.1839689	1 15.3	256 17 50.6	0 2 58.8	.8610732
14	14 49 19.17	16 21 29.5	1.1827543	1 16.2	257 53 1.4	0 8 37.2	.8611381
15	14 54 11.86	16 45 41.1	1.1815271	1 17.2	259 28 10.5	0 14 15.1	.8612016
16	14 59 5.74	17 9 27.4	1.1802872	1 18.1	261 3 18.1	0 19 52.3	.8612636
17	15 4 0.82	17 32 47.7	1.1790346	1 19.1	262 38 24.2	0 25 28.4	.8613241
18	15 8 57.11	17 55 41.2	1.1777693	1 20.1	264 13 28.8	0 31 3.3	.8613831
19	15 13 54.63	18 18 7.1	1.1764913	1 21.1	265 48 32.1	0 36 36.7	.8614405
20	15 18 53.39	18 40 4.6	1.1752004	1 22.2	267 23 34.1	0 42 8.3	.8614963
21	15 23 53.39	19 1 33.0	1.1738965	1 23.2	268 58 34.9	0 47 37.9	.8615504
22	15 28 54.63	19 22 31.4	1.1725795	1 24.3	270 33 34.6	0 53 5.3	.8616028
23	15 33 57.12	19 42 59.2	1.1712493	1 25.4	272 8 33.2	0 58 30.1	.8616534
24	15 39 0.84	20 2 55.5	1.1699058	1 26.5	273 43 30.8	1 3 52.2	.8617023
25	15 44 5.80	20 22 19.7	1.1685488	1 27.7	275 18 27.4	1 9 11.3	.8617493
26	15 49 11.99	20 41 10.9	1.1671783	1 28.8	276 53 23.2	1 14 27.1	.8617944
27	15 54 19.39	20 59 28.5	1.1657941	1 30.0	278 28 18.2	1 19 39.5	.8618376
28	15 59 27.99	21 17 11.8	1.1643960	1 31.2	280 3 12.5	1 24 48.2	.8618789
29	16 4 37.77	21 34 20.0	1.1629841	1 32.4	281 38 6.2	1 29 52.9	.8619182
30	16 9 48.71	21 50 52.4	1.1615582	1 33.7	283 12 59.3	1 34 53.5	.8619555
31	16 15 0.79	22 6 48.3	1.1601183	1 35.0	284 47 51.9	1 39 49.7	.8619908
Nov. 1	16 20 13.97	22 22 7.2	1.1586641	1 36.2	286 22 44.0	1 44 41.3	.8620240
2	16 25 28.23	22 36 48.3	1.1571956	1 37.5	287 57 35.9	1 49 28.1	.8620552
3	16 30 43.52	22 50 51.1	1.1557127	1 38.8	289 32 27.4	1 54 9.8	.8620842
4	16 35 59.82	23 4 15.0	1.1542152	1 40.2	291 7 18.7	1 58 46.3	.8621111
5	16 41 17.08	23 16 59.3	1.1527031	1 41.5	292 42 9.9	2 3 17.3	.8621358
6	16 46 35.25	23 29 3.6	1.1511763	1 42.9	294 17 1.0	2 7 42.7	.8621584
7	16 51 54.29	23 40 27.2	1.1496349	1 44.3	295 51 52.1	2 12 2.3	.8621788
8	16 57 14.15	23 51 9.6	1.1480788	1 45.6	297 26 43.2	2 16 15.7	.8621971
9	17 2 34.79	24 1 10.4	1.1465080	1 47.0	299 1 34.4	2 20 23.0	.8622131
10	17 7 56.14	24 10 29.1	1.1449226	1 48.5	300 36 25.8	2 24 23.8	.8622269
11	17 13 18.16	24 19 5.3	1.1433226	1 49.9	302 11 17.3	2 28 18.0	.8622385
12	17 18 40.79	24 26 58.5	1.1417081	1 51.3	303 46 9.1	2 32 5.5	.8622479
13	17 24 3.99	24 34 8.4	1.1400789	1 52.8	305 21 1.3	2 35 46.0	.8622551
14	17 29 27.68	24 40 34.7	1.1384351	1 54.2	306 55 53.9	2 39 19.4	.8622600
15	17 34 51.81	24 46 17.1	1.1367765	1 55.7	308 30 46.9	2 42 45.5	.8622627
16	17 40 16.33	24 51 15.2	1.1351032	1 57.2	310 5 40.4	2 46 4.2	.8622631
17	17 45 41.16	24 55 28.9	1.1334149	1 58.6	311 40 34.4	2 49 15.3	.8622613
18	17 51 6.25	24 58 57.9	1.1317115	2 0.1	313 15 29.1	2 52 18.6	.8622572
19	17 56 31.52	25 1 42.1	1.1299928	2 1.6	314 50 24.3	2 55 14.1	.8622509
20	18 1 56.91	25 3 41.3	1.1282587	2 3.1	316 25 20.3	2 58 1.6	.8622423
21	18 7 22.36	25 4 55.4	1.1265089	2 4.6	318 0 17.0	3 0 41.0	.8622315
22	18 12 47.79	25 5 24.3	1.1247433	2 6.0	319 35 14.5	3 3 12.1	.8622184
23	18 18 13.14	25 5 8.0	1.1229617	2 7.5	321 10 12.7	3 5 34.9	.8622031

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South. ° ' "</i>	<i>9</i>
Nov. 23	18 18 13.14	25 5 8.0	1229617	2 7.5	321 10 12.7	3 5 34.9	.8622031
24	18 23 38.33	25 4 6.4	1211639	2 9.0	322 45 11.8	3 7 49.2	.8621856
25	18 29 3.30	25 2 19.7	1193497	2 10.5	324 20 11.9	3 9 54.9	.8621658
26	18 34 27.98	24 59 47.8	1175188	2 11.9	325 55 12.8	3 11 52.0	.8621439
27	18 39 52.29	24 56 31.0	1156711	2 13.4	327 30 14.6	3 13 40.3	.8621199
28	18 45 16.17	24 52 29.3	1138063	2 14.9	329 5 17.4	3 15 19.8	.8620937
29	18 50 39.54	24 47 43.0	1119242	2 16.3	330 40 21.3	3 16 50.3	.8620654
30	18 56 2.34	24 42 12.3	1100246	2 17.7	332 15 26.2	3 18 11.8	.8620350
Dec. 1	19 1 24.49	24 35 57.4	1081072	2 19.2	333 50 32.2	3 19 24.2	.8620025
2	19 6 45.93	24 28 58.6	1061719	2 20.6	335 25 39.2	3 20 27.5	.8619680
3	19 12 6.60	24 21 16.2	1042184	2 22.0	337 0 47.4	3 21 21.7	.8619314
4	19 17 26.42	24 12 50.6	1022465	2 23.4	338 35 56.8	3 22 6.7	.8618928
5	19 22 45.32	24 3 42.2	1002561	2 24.7	340 11 7.3	3 22 42.3	.8618522
6	19 28 3.25	23 53 51.4	0982469	2 26.1	341 46 19.0	3 23 8.7	.8618097
7	19 33 20.16	23 43 18.6	0962190	2 27.4	342 21 31.9	3 23 25.7	.8617652
8	19 38 35.99	23 32 4.3	0941723	2 28.8	344 56 46.1	3 23 33.4	.8617188
9	19 43 50.68	23 20 9.0	0921067	2 30.1	346 32 1.5	3 23 31.8	.8616706
10	19 49 4.20	23 7 33.2	0900222	2 31.4	348 7 18.2	3 23 20.8	.8616206
11	19 54 16.49	22 54 17.5	0879186	2 32.6	349 42 36.2	3 23 0.4	.8615687
12	19 59 27.52	22 40 22.4	0857958	2 33.9	351 17 55.5	3 22 30.7	.8615152
13	20 4 37.24	22 25 48.5	0836537	2 35.1	352 53 16.1	3 21 51.7	.8614599
14	20 9 45.63	22 10 36.3	0814922	2 36.3	354 28 38.1	3 21 3.3	.8614030
15	20 14 52.64	21 54 46.6	0793110	2 37.4	356 4 1.4	3 20 5.7	.8613445
16	20 19 58.26	21 38 19.9	0771100	2 38.6	357 39 26.0	3 18 58.9	.8612845
17	20 25 2.44	21 21 16.9	0748888	2 39.7	359 14 52.1	3 17 42.8	.8612229
18	20 30 5.17	21 3 38.3	0726473	2 40.8	0 50 19.5	3 16 17.6	.8611598
19	20 35 6.42	20 45 24.8	0703851	2 41.9	2 25 48.3	3 14 43.3	.8610953
20	20 40 6.18	20 26 37.1	0681020	2 42.9	4 1 18.5	3 13 0.0	.8610293
21	20 45 4.43	20 7 15.8	0657978	2 44.0	5 36 50.2	3 11 7.8	.8609621
22	20 50 1.15	19 47 21.7	0634721	2 45.0	7 12 23.3	3 9 6.6	.8608936
23	20 54 56.34	19 26 55.5	0611245	2 45.9	8 47 57.8	3 6 56.7	.8608238
24	20 59 49.99	19 5 58.0	0587549	2 46.9	10 23 33.8	3 4 38.0	.8607528
25	21 4 42.08	18 44 30.0	0563627	2 47.8	11 59 11.3	3 2 10.8	.8606807
26	21 9 32.62	18 22 32.1	0539477	2 48.7	13 34 50.2	2 59 35.1	.8606076
27	21 14 21.60	18 0 5.3	0515095	2 49.6	15 10 30.5	2 56 51.0	.8605334
28	21 19 9.01	17 37 10.2	0490476	2 50.4	16 46 12.4	2 53 58.6	.8604582
29	21 23 54.85	17 13 47.8	0465615	2 51.2	18 21 55.8	2 50 58.1	.8603822
30	21 28 39.13	16 49 58.8	0440508	2 52.0	19 57 40.7	2 47 49.6	.8603053
31	21 33 21.83	16 25 44.0	0415152	2 52.8	21 33 27.1	2 44 33.2	.8602276
32	21 38 2.97	16 1 4.3	0389544	2 53.6	23 9 15.1	2 41 9.1	.8601492

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	South.		°		South.		°
	h m s	° ' "		h m	° ' "		
Jan. 1	16 37 26.63	22 11 24.0	3647395	21 55.0	232 38 29.7	0 8 8.4	1868724
2	16 40 28.57	22 17 55.9	3637057	21 54.1	233 9 14.7	0 9 7.9	1865101
3	16 43 30.96	22 24 15.6	3626637	21 53.2	233 40 2.8	0 10 7.4	1861469
4	16 46 33.78	22 30 23.0	3616134	21 52.3	234 10 54.0	0 11 7.0	1857828
5	16 49 37.04	22 36 18.0	3605550	21 51.4	234 41 48.3	0 12 6.7	1854179
6	16 52 40.72	22 42 0.5	3594885	21 50.6	235 12 45.8	0 13 6.4	1850522
7	16 55 44.81	22 47 30.4	3584140	21 49.7	235 43 46.3	0 14 6.1	1846857
8	16 58 49.30	22 52 47.6	3573313	21 48.8	236 14 50.1	0 15 5.8	1843184
9	17 1 54.17	22 57 52.0	3562406	21 48.0	236 45 56.9	0 16 5.6	1839504
10	17 4 59.42	23 2 43.5	3551419	21 47.1	237 17 7.0	0 17 5.4	1835816
11	17 8 5.03	23 7 21.9	3540353	21 46.3	237 48 20.2	0 18 5.2	1832122
12	17 11 11.00	23 11 47.1	3529211	21 45.4	238 19 36.7	0 19 5.0	1828421
13	17 14 17.31	23 15 59.1	3517992	21 44.6	238 50 56.3	0 20 4.8	1824715
14	17 17 23.95	23 19 57.8	3506699	21 43.8	239 22 19.2	0 21 4.6	1821002
15	17 20 30.91	23 23 43.1	3495333	21 43.0	239 53 45.3	0 22 4.4	1817283
16	17 23 38.20	23 27 14.9	3483894	21 42.2	240 25 14.7	0 23 4.2	1813559
17	17 26 45.80	23 30 33.2	3472383	21 41.3	240 56 47.3	0 24 4.0	1809831
18	17 29 53.70	23 33 37.8	3460802	21 40.5	241 28 23.1	0 25 3.8	1806097
19	17 33 1.89	23 36 28.7	3449150	21 39.7	242 0 2.2	0 26 3.5	1802359
20	17 36 10.36	23 39 5.8	3437430	21 38.9	242 31 44.6	0 27 3.2	1798617
21	17 39 19.10	23 41 29.0	3425642	21 38.1	243 3 30.3	0 28 2.9	1794871
22	17 42 28.10	23 43 38.4	3413787	21 37.3	243 35 19.3	0 29 2.5	1791121
23	17 45 37.36	23 45 33.8	3401863	21 36.6	244 7 11.6	0 30 2.1	1787368
24	17 48 46.86	23 47 15.1	3389872	21 35.8	244 39 7.2	0 31 1.6	1783612
25	17 51 56.59	23 48 42.4	3377815	21 35.0	245 11 6.1	0 32 1.1	1779853
26	17 55 6.54	23 49 55.6	3365692	21 34.2	245 43 8.4	0 33 0.6	1776092
27	17 58 16.70	23 50 54.5	3353504	21 33.5	246 15 14.0	0 33 59.9	1772329
28	18 1 27.07	23 51 39.2	3341250	21 32.7	246 47 22.9	0 34 59.2	1768565
29	18 4 37.63	23 52 9.6	3328930	21 31.9	247 19 35.3	0 35 58.4	1764799
30	18 7 48.35	23 52 25.6	3316544	21 31.2	247 51 50.9	0 36 57.5	1761033
31	18 10 59.25	23 52 27.2	3304093	21 30.4	248 24 10.0	0 37 56.5	1757266
Feb. 1	18 14 10.30	23 52 14.4	3291574	21 29.7	248 56 32.4	0 38 55.5	1753498
2	18 17 21.48	23 51 47.3	3278989	21 28.9	249 28 58.2	0 39 54.3	1749731
3	18 20 32.79	23 51 5.7	3266339	21 28.2	250 1 27.4	0 40 53.0	1745964
4	18 23 44.21	23 50 9.7	3253622	21 27.4	250 34 0.0	0 41 51.6	1742198
5	18 26 55.72	23 48 59.3	3240841	21 26.6	251 6 36.0	0 42 50.1	1738433
6	18 30 7.32	23 47 34.4	3227995	21 25.9	251 39 15.4	0 43 48.4	1734669
7	18 33 18.97	23 45 55.1	3215085	21 25.1	252 11 58.2	0 44 46.6	1730907
8	18 36 30.67	23 44 1.4	3202113	21 24.4	252 44 44.4	0 45 44.7	1727148
9	18 39 42.40	23 41 53.2	3189079	21 23.7	253 17 34.1	0 46 42.6	1723391
10	18 42 54.15	23 39 30.5	3175986	21 22.9	253 50 27.2	0 47 40.3	1719637
11	18 46 5.89	23 36 53.4	3162835	21 22.2	254 23 23.7	0 48 37.9	1715886

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South. ° ' "</i>	<i>°</i>
Feb. 11	18 46 5 89	23 36 53 4	3162835	21 22 2	254 23 23 7	0 48 37 9	1715886
12	18 49 17 64	23 34 1 9	3149627	21 21 4	254 56 23 6	0 49 35 3	1712139
13	18 52 29 36	23 30 56 0	3136361	21 20 7	255 29 27 0	0 50 32 6	1708396
14	18 55 41 05	23 27 35 7	3123041	21 19 9	256 2 33 8	0 51 29 6	1704658
15	18 58 52 71	23 24 1 1	3109667	21 19 2	256 35 44 0	0 52 26 5	1700924
16	19 2 4 32	23 20 12 2	3096242	21 18 4	257 8 57 7	0 53 23 2	1697196
17	19 5 15 86	23 16 8 9	3082765	21 17 7	257 42 14 8	0 54 19 6	1693473
18	19 8 27 33	23 11 51 4	3069237	21 16 9	258 15 35 4	0 55 15 9	1689756
19	19 11 38 72	23 7 19 7	3055658	21 16 2	258 48 59 4	0 56 11 9	1686045
20	19 14 50 02	23 2 33 9	3042030	21 15 4	259 22 26 9	0 57 7 8	1682341
21	19 18 1 22	22 57 33 9	3028352	21 14 7	259 55 57 7	0 58 3 3	1678644
22	19 21 12 31	22 52 19 8	3014627	21 13 9	260 29 32 1	0 58 58 7	1674955
23	19 24 23 27	22 46 51 8	3000855	21 13 1	261 3 9 8	0 59 53 8	1671273
24	19 27 34 11	22 41 9 7	2987035	21 12 4	261 36 51 1	1 0 48 7	1667600
25	19 30 44 80	22 35 13 7	2973168	21 11 6	262 10 35 7	1 1 43 2	1663935
26	19 33 55 34	22 29 3 9	2959254	21 10 8	262 44 23 8	1 2 37 6	1660279
27	19 37 5 73	22 22 40 3	2945291	21 10 1	263 18 15 3	1 3 31 6	1656633
28	19 40 15 95	22 16 3 0	2931280	21 9 3	263 52 10 2	1 4 25 4	1652996
29	19 43 25 99	22 9 12 1	2917222	21 8 5	264 26 8 6	1 5 18 9	1649370
Mar. 1	19 46 35 85	22 2 7 6	2903115	21 7 7	265 0 10 4	1 6 12 0	1645754
2	19 49 45 51	21 54 49 7	2888959	21 7 0	265 34 15 6	1 7 4 9	1642149
3	19 52 54 96	21 47 18 5	2874756	21 6 2	266 8 24 2	1 7 57 5	1638555
4	19 56 4 19	21 39 34 0	2860506	21 5 4	266 42 36 2	1 8 49 8	1634974
5	19 59 13 18	21 31 36 4	2846209	21 4 6	267 16 51 6	1 9 41 7	1631404
6	20 2 21 92	21 23 25 9	2831867	21 3 8	267 51 10 5	1 10 33 3	1627847
7	20 5 30 41	21 15 2 5	2817479	21 3 0	268 25 32 7	1 11 24 6	1624304
8	20 8 38 63	21 6 26 2	2803046	21 2 1	268 59 58 2	1 12 15 5	1620773
9	20 11 46 57	20 57 37 4	2788570	21 1 3	269 34 27 2	1 13 6 1	1617257
10	20 14 54 24	20 48 35 9	2774052	21 0 5	270 8 59 5	1 13 56 3	1613755
11	20 18 1 61	20 39 22 0	2759492	20 59 7	270 43 35 2	1 14 46 2	1610268
12	20 21 8 68	20 29 55 8	2744894	20 58 9	271 18 14 2	1 15 35 6	1606796
13	20 24 15 45	20 20 17 3	2730257	20 58 0	271 52 56 6	1 16 24 7	1603339
14	20 27 21 91	20 10 26 7	2715584	20 57 2	272 27 42 3	1 17 13 4	1599898
15	20 30 28 05	20 0 24 3	2700877	20 56 4	273 2 31 4	1 18 1 7	1596474
16	20 33 33 88	19 50 9 9	2686134	20 55 5	273 37 23 7	1 18 49 6	1593067
17	20 36 39 39	19 39 43 8	2671358	20 54 6	274 12 19 3	1 19 37 1	1589677
18	20 39 44 57	19 29 6 3	2656549	20 53 8	274 47 18 3	1 20 24 2	1586305
19	20 42 49 43	19 18 17 2	2641708	20 52 9	275 22 20 4	1 21 10 8	1582951
20	20 45 53 95	19 7 16 8	2626836	20 52 1	275 57 25 9	1 21 57 0	1579616
21	20 48 58 14	18 56 5 3	2611933	20 51 2	276 32 34 6	1 22 42 8	1576299
22	20 52 1 99	18 44 42 6	2596998	20 50 3	277 7 46 5	1 23 28 1	1573002
23	20 55 5 51	18 33 9 0	2582033	20 49 4	277 43 1 6	1 24 12 9	1569725

MEAN TIME.

Month and Day.	Geocentric.					Heliocentric.		
	Apparent light Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.		Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.			Noon.	Noon	Noon.
	h m s	South. ° ' "	°	h m		° ' "	South. ° ' "	°
Mar. 23	20 55 5.51	18 33 9.0	2582033	20 49.4		277 43 1.6	1 24 12.9	1569725
24	20 58 8.68	18 21 24.6	2567037	20 48.5		278 18 19.9	1 24 57.3	1566468
25	21 1 11.52	18 9 29.5	2552009	20 47.6		278 53 41.5	1 25 41.2	1563232
26	21 4 14.02	17 57 23.9	2536950	20 46.7		279 29 6.2	1 26 24.7	1560017
27	21 7 16.18	17 45 8.0	2521858	20 45.8		280 4 34.0	1 27 7.6	1556823
28	21 10 17.99	17 32 41.8	2506735	20 44.9		280 40 5.0	1 27 50.0	1553652
29	21 13 19.45	17 20 5.7	2491580	20 44.0		281 15 39.1	1 28 32.0	1550503
30	21 16 20.56	17 7 19.8	2476393	20 43.0		281 51 16.3	1 29 13.4	1547377
31	21 19 21.32	16 54 24.1	2461173	20 42.1		282 26 56.7	1 29 54.3	1544274
Apr. 1	21 22 21.72	16 41 18.9	2445920	20 41.1		283 2 40.1	1 30 34.7	1541195
2	21 25 21.77	16 28 4.4	2430635	20 40.2		283 38 26.5	1 31 14.6	1538140
3	21 28 21.45	16 14 40.7	2415318	20 39.3		284 14 16.0	1 31 53.9	1535109
4	21 31 20.76	16 1 8.0	2399969	20 38.3		284 50 8.5	1 32 32.7	1532103
5	21 34 19.71	15 47 26.6	2384590	20 37.3		285 26 4.1	1 33 10.9	1529123
6	21 37 18.28	15 33 36.4	2369179	20 36.4		286 2 2.6	1 33 48.6	1526169
7	21 40 16.48	15 19 37.8	2353738	20 35.4		286 38 4.1	1 34 25.7	1523241
8	21 43 14.30	15 5 31.1	2338268	20 34.4		287 14 8.4	1 35 2.2	1520339
9	21 46 11.75	14 51 16.1	2322770	20 33.4		287 50 15.7	1 35 38.2	1517465
10	21 49 8.82	14 36 53.2	2307245	20 32.4		288 26 25.9	1 36 13.6	1514618
11	21 52 5.52	14 22 22.5	2291695	20 31.4		289 2 38.9	1 36 48.3	1511798
12	21 55 1.85	14 7 44.2	2276120	20 30.4		289 38 54.8	1 37 22.5	1509007
13	21 57 57.81	13 52 58.5	2260522	20 29.4		290 15 13.4	1 37 56.1	1506245
14	22 0 53.49	13 38 5.6	2244902	20 28.4		290 51 34.9	1 38 29.1	1503511
15	22 3 48.64	13 23 5.5	2229259	20 27.3		291 27 59.1	1 39 1.4	1500807
16	22 6 43.52	13 7 58.5	2213595	20 26.3		292 4 26.0	1 39 33.1	1498133
17	22 9 38.04	12 52 44.8	2197909	20 25.3		292 40 55.6	1 40 4.2	1495488
18	22 12 32.22	12 37 24.4	2182202	20 24.2		293 17 27.9	1 40 34.6	1492875
19	22 15 26.05	12 21 57.6	2166475	20 23.2		293 54 2.8	1 41 4.4	1490292
20	22 18 19.54	12 6 24.5	2150727	20 22.1		294 30 40.3	1 41 33.6	1487741
21	22 21 12.69	11 50 45.3	2134956	20 21.1		295 7 20.4	1 42 2.1	1485222
22	22 24 5.51	11 35 0.1	2119162	20 20.0		295 44 3.1	1 42 29.9	1482734
23	22 26 58.01	11 19 9.2	2103345	20 18.9		296 20 48.3	1 42 57.0	1480280
24	22 29 50.19	11 3 12.7	2087503	20 17.8		296 57 36.0	1 43 23.5	1477858
25	22 32 42.05	10 47 10.8	2071636	20 16.8		297 34 26.1	1 43 49.3	1475469
26	22 35 33.60	10 31 3.8	2055743	20 15.7		298 11 18.7	1 44 14.4	1473114
27	22 38 24.84	10 14 51.7	2039824	20 14.6		298 48 13.7	1 44 38.8	1470793
28	22 41 15.77	9 58 34.7	2023379	20 13.5		299 25 11.1	1 45 2.5	1468507
29	22 44 6.39	9 42 13.2	2007906	20 12.4		300 2 10.8	1 45 25.5	1466255
30	22 46 56.71	9 25 47.2	1991906	20 11.3		300 39 12.8	1 45 47.8	1464038
May 1	22 49 46.72	9 9 16.9	1975877	20 10.2		301 16 17.1	1 46 9.3	1461857
2	22 52 36.43	8 52 42.7	1959820	20 9.1		301 53 23.7	1 46 30.2	1459712
3	22 55 25.83	8 36 4.6	1943733	20 7.9		302 30 32.4	1 46 50.4	1457602

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>South.</div> <div>° ' "</div> </div>							
May 3	h m s 22 55 25.83	8 36 4.6	1943733	h m 20 7.9	° ' " 302 30 32.4	South. 1 46 50.4	° 1457602
4	22 58 14.94	8 19 22.8	1927616	20 6.8	303 7 43.3	1 47 9.8	1455530
5	23 1 3.74	8 2 37.6	1911469	20 5.7	303 44 56.3	1 47 28.4	1453493
6	23 3 52.25	7 45 49.1	1895294	20 4.5	304 22 11.4	1 47 46.3	1451494
7	23 6 40.46	7 28 57.6	1879089	20 3.4	304 59 28.6	1 48 3.5	1449533
8	23 9 28.38	7 12 3.2	1862857	20 2.2	305 36 47.7	1 48 19.9	1447609
9	23 12 16.02	6 55 6.1	1846597	20 1.1	306 14 8.9	1 48 35.6	1445723
10	23 15 3.37	6 38 6.4	1830311	19 59.9	306 51 32.0	1 48 50.5	1443875
11	23 17 50.45	6 21 4.4	1814000	19 58.8	307 28 57.0	1 49 4.7	1442066
12	23 20 37.25	6 4 0.2	1797663	19 57.6	308 6 23.9	1 49 18.1	1440296
13	23 23 23.78	5 46 54.0	1781302	19 56.4	308 43 52.5	1 49 30.8	1438566
14	23 26 10.06	5 29 46.1	1764916	19 55.3	309 21 23.0	1 49 42.7	1436874
15	23 28 56.07	5 12 36.4	1748505	19 54.1	309 58 55.2	1 49 53.8	1435223
16	23 31 41.84	4 55 25.1	1732070	19 52.9	310 36 29.1	1 50 4.1	1433612
17	23 34 27.36	4 38 12.6	1715608	19 51.7	311 14 4.7	1 50 13.6	1432041
18	23 37 12.65	4 20 58.8	1699119	19 50.5	311 51 41.9	1 50 22.4	1430510
19	23 39 57.71	4 3 44.0	1682602	19 49.3	312 29 20.6	1 50 30.3	1429021
20	23 42 42.55	3 46 28.5	1666055	19 48.1	313 7 0.9	1 50 37.5	1427573
21	23 45 27.17	3 29 12.2	1649479	19 46.9	313 44 42.7	1 50 43.9	1426166
22	23 48 11.58	3 11 55.3	1632873	19 45.7	314 22 25.9	1 50 49.5	1424801
23	23 50 55.79	2 54 38.2	1616233	19 44.5	315 0 10.6	1 50 54.2	1423479
24	23 53 39.80	2 37 20.8	1599559	19 43.3	315 37 56.6	1 50 58.2	1422198
25	23 56 23.61	2 20 3.6	1582849	19 42.1	316 15 43.9	1 51 1.4	1420960
26	23 59 7.23	2 2 46.6	1566101	19 40.9	316 53 32.5	1 51 3.7	1419764
27	0 1 50.65	1 45 30.0	1549315	19 39.7	317 31 22.3	1 51 5.3	1418611
28	0 4 33.89	1 28 13.8	1532487	19 38.4	318 9 13.3	1 51 6.0	1417500
29	0 7 16.94	1 10 58.5	1515617	19 37.2	318 47 5.5	1 51 6.0	1416433
30	0 9 59.80	0 53 44.2	1498704	19 36.0	319 24 58.7	1 51 5.1	1415409
31	0 12 42.46	0 36 31.1	1481745	19 34.8	320 2 53.0	1 51 3.5	1414428
June 1	0 15 24.93	0 19 19.4	1464741	19 33.5	320 40 48.3	1 51 1.0	1413491
2	0 18 7.23	0 2 9.2	1447691	19 32.3	321 18 44.5	1 50 57.7	1412598
<div> <div>North.</div> <div>° ' "</div> </div>							
3	0 20 49.33	0 14 59.3	1430593	19 31.0	321 56 41.6	1 50 53.6	1411748
4	0 23 31.25	0 32 5.7	1413449	19 29.8	322 34 39.6	1 50 48.7	1410943
5	0 26 12.98	0 49 10.1	1396257	19 28.5	323 12 38.5	1 50 43.0	1410181
6	0 28 54.53	1 6 12.2	1379019	19 27.3	323 50 38.0	1 50 36.5	1409464
7	0 31 35.89	1 23 12.1	1361734	19 26.0	324 28 38.4	1 50 29.2	1408791
8	0 34 17.08	1 40 9.6	1344402	19 24.8	325 6 39.3	1 50 21.1	1408163
9	0 36 58.08	1 57 4.2	1327026	19 23.5	325 44 41.0	1 50 12.1	1407579
10	0 39 38.91	2 13 55.9	1309602	19 22.3	326 22 43.2	1 50 2.4	1407040
11	0 42 19.57	2 30 44.7	1292130	19 21.0	327 0 45.9	1 49 51.8	1406546
12	0 45 0.06	2 47 30.2	1274609	19 19.7	327 38 49.1	1 49 40.4	1406097
13	0 47 40.39	3 4 12.4	1257038	19 18.5	328 16 52.8	1 49 28.3	1405693

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South. ° ' "</i>	<i>°</i>
June 13	0 47 40.39	3 4 12.4	1257038	19 18.5	328 16 52.8	1 49 28.3	1405693
14	0 50 20.56	3 20 51.1	1239417	19 17.2	328 54 56.9	1 49 15.3	1405334
15	0 53 0.58	3 37 26.3	1221746	19 15.9	329 33 1.3	1 49 1.5	1405021
16	0 55 40.44	3 53 57.7	1204021	19 14.6	330 11 6.1	1 48 46.9	1404752
17	0 58 20.16	4 10 25.3	1186242	19 13.3	330 49 11.1	1 48 31.5	1404530
18	1 0 59.73	4 26 48.8	1168406	19 12.1	331 27 16.3	1 48 15.3	1404352
19	1 3 39.15	4 43 8.0	1150510	19 10.8	332 5 21.6	1 47 58.3	1404220
20	1 6 18.43	4 59 23.0	1132554	19 9.5	332 43 27.0	1 47 40.5	1404133
21	1 8 57.58	5 15 33.7	1114536	19 8.2	333 21 32.5	1 47 21.9	1404092
22	1 11 36.58	5 31 39.6	1096450	19 6.9	333 59 38.0	1 47 2.5	1404096
23	1 14 15.45	5 47 40.9	1078298	19 5.6	334 37 43.5	1 46 42.3	1404145
24	1 16 54.18	6 3 37.2	1060075	19 4.3	335 15 48.9	1 46 21.4	1404240
25	1 19 32.77	6 19 28.3	1041777	19 3.0	335 53 54.1	1 45 59.6	1404380
26	1 22 11.20	6 35 14.2	1023405	19 1.7	336 31 59.1	1 45 37.1	1404565
27	1 24 49.48	6 50 54.8	1004953	19 0.4	337 10 3.8	1 45 13.8	1404796
28	1 27 27.60	7 6 29.7	986420	18 59.1	337 48 8.3	1 44 49.7	1405072
29	1 30 5.55	7 21 59.0	967806	18 57.8	338 26 12.4	1 44 24.9	1405393
30	1 32 43.33	7 37 22.4	949106	18 56.5	339 4 16.2	1 43 59.3	1405759
July 1	1 35 20.94	7 52 39.7	930320	18 55.1	339 42 19.5	1 43 33.0	1406171
2	1 37 58.36	8 7 51.0	911449	18 53.8	340 20 22.3	1 43 5.9	1406627
3	1 40 35.60	8 22 56.1	892492	18 52.5	340 58 24.7	1 42 38.0	1407129
4	1 43 12.64	8 37 54.7	873447	18 51.2	341 36 26.4	1 42 9.4	1407675
5	1 45 49.49	8 52 46.9	854315	18 49.8	342 14 27.6	1 41 40.1	1408266
6	1 48 26.13	9 7 32.4	835094	18 48.5	342 52 28.1	1 41 10.0	1408902
7	1 51 2.57	9 22 11.1	815784	18 47.2	343 30 27.9	1 40 39.2	1409582
8	1 53 38.79	9 36 43.0	796385	18 45.8	344 8 26.9	1 40 7.6	1410307
9	1 56 14.80	9 51 7.9	776897	18 44.5	344 46 25.2	1 39 35.3	1411076
10	1 58 50.60	10 5 25.7	757316	18 43.1	345 24 22.6	1 39 2.3	1411890
11	2 1 26.17	10 19 36.4	737642	18 41.8	346 2 19.2	1 38 28.6	1412747
12	2 4 1.51	10 33 39.8	717871	18 40.4	346 40 14.8	1 37 54.2	1413649
13	2 6 36.62	10 47 35.7	698002	18 39.1	347 18 9.4	1 37 19.1	1414594
14	2 9 11.50	11 1 24.3	678033	18 37.7	347 56 3.0	1 36 43.3	1415583
15	2 11 46.14	11 15 5.3	657964	18 36.4	348 33 55.5	1 36 6.8	1416615
16	2 14 20.54	11 28 38.7	637791	18 35.0	349 11 46.9	1 35 29.7	1417691
17	2 16 54.69	11 42 4.4	617512	18 33.6	349 49 37.1	1 34 51.8	1418809
18	2 19 28.60	11 55 22.4	597127	18 32.2	350 27 26.1	1 34 13.3	1419970
19	2 22 2.25	12 8 32.4	576628	18 30.9	351 5 13.9	1 33 34.1	1421174
20	2 24 35.63	12 21 34.5	556016	18 29.5	351 43 0.3	1 32 54.3	1422421
21	2 27 8.74	12 34 28.5	535285	18 28.1	352 20 45.3	1 32 13.8	1423710
22	2 29 41.56	12 47 14.4	514429	18 26.7	352 58 29.0	1 31 32.7	1425041
23	2 32 14.09	12 59 52.0	493450	18 25.2	353 36 11.2	1 30 51.0	1426414
24	2 34 46.31	13 12 21.3	472342	18 23.8	354 13 51.9	1 30 8.6	1427828

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>North.</div> <div>° ' "</div> <div>°</div> </div>							
<div> <div>h m s.</div> <div>° ' "</div> <div>°</div> </div>							
July 24	2 34 46.31	13 12 21.3	0.472342	18 23.8	354 13 51.9	1 30 8.6	1427828
25	2 37 18.20	13 24 42.1	0.451100	18 22.4	354 51 31.1	1 29 25.6	1429284
26	2 39 49.75	13 36 54.5	0.429724	18 21.0	355 29 8.8	1 28 42.0	1430780
27	2 42 20.94	13 48 58.3	0.408207	18 19.6	356 6 44.8	1 27 57.8	1432318
28	2 44 51.75	14 0 53.5	0.386549	18 18.2	356 44 19.2	1 27 13.0	1433896
29	2 47 22.17	14 12 40.0	0.364751	18 16.7	357 21 51.9	1 26 27.6	1435514
30	2 49 52.18	14 24 17.7	0.342811	18 15.3	357 59 22.8	1 25 41.6	1437172
31	2 52 21.75	14 35 46.5	0.320728	18 13.8	358 36 52.0	1 24 55.0	1438870
Aug. 1	2 54 50.89	14 47 6.5	0.298500	18 12.3	359 14 19.4	1 24 7.9	1440008
2	2 57 19.57	14 58 17.6	0.276126	18 10.9	359 51 44.9	1 23 20.2	1442385
3	2 59 47.76	15 9 19.7	0.253604	18 9.4	0 29 8.6	1 22 32.0	1444200
4	3 2 15.47	15 20 12.9	0.230934	18 7.9	1 6 30.3	1 21 43.2	1446055
5	3 4 42.68	15 30 57.0	0.208115	18 6.4	1 43 50.1	1 20 53.9	1447947
6	3 7 9.36	15 41 32.0	0.185144	18 4.9	2 21 7.8	1 20 4.0	1449878
7	3 9 35.51	15 51 57.9	0.162021	18 3.4	2 58 23.6	1 19 13.7	1451846
8	3 12 1.08	16 2 14.8	0.138744	18 1.9	3 35 37.2	1 18 22.8	1453851
9	3 14 26.07	16 12 22.6	0.115311	18 0.4	4 12 48.8	1 17 31.4	1455894
10	3 16 50.48	16 22 21.3	0.091722	17 58.8	4 49 58.2	1 16 39.5	1457973
11	3 19 14.30	16 32 10.9	0.067974	17 57.3	5 27 5.5	1 15 47.2	1460089
12	3 21 37.50	16 41 51.5	0.044065	17 55.7	6 4 10.5	1 14 54.3	1462241
13	3 24 0.06	16 51 23.0	0.019994	17 54.1	6 41 13.3	1 14 1.0	1464428
9							
14	3 26 21.96	17 0 45.4	0.995761	17 52.5	7 18 13.8	1 13 7.2	1466651
15	3 28 43.19	17 9 58.8	0.971359	17 51.0	7 55 12.0	1 12 13.0	1468909
16	3 31 3.73	17 19 3.2	0.946788	17 49.4	8 32 7.9	1 11 18.3	1471202
17	3 33 23.58	17 27 58.7	0.922045	17 47.7	9 9 1.4	1 10 23.2	1473529
18	3 35 42.69	17 36 45.2	0.897122	17 46.1	9 45 52.4	1 9 27.7	1475890
19	3 38 1.06	17 45 22.7	0.872020	17 44.4	10 22 41.1	1 8 31.7	1478284
20	3 40 18.65	17 53 51.2	0.846732	17 42.8	10 59 27.2	1 7 35.4	1480712
21	3 42 35.41	18 2 10.8	0.821253	17 41.1	11 36 10.9	1 6 38.6	1483173
22	3 44 51.34	18 10 21.5	0.795585	17 39.4	12 12 52.0	1 5 41.4	1485666
23	3 47 6.40	18 18 23.4	0.769719	17 37.8	12 49 30.6	1 4 43.9	1488191
24	3 49 20.55	18 26 16.4	0.743657	17 36.0	13 26 6.6	1 3 46.0	1490748
25	3 51 33.78	18 34 0.7	0.717397	17 34.3	14 2 39.9	1 2 47.7	1493337
26	3 53 46.03	18 41 36.3	0.690937	17 32.5	14 39 10.6	1 1 49.1	1495957
27	3 55 57.27	18 49 3.2	0.664277	17 30.8	15 15 38.6	1 0 50.1	1498607
28	3 58 7.48	18 56 21.6	0.637416	17 29.0	15 52 3.9	0 59 50.8	1501288
29	4 0 16.62	19 3 31.5	0.610351	17 27.2	16 28 26.4	0 58 51.1	1503998
30	4 2 24.65	19 10 32.9	0.583086	17 25.4	17 4 46.2	0 57 51.2	1506738
31	4 4 31.55	19 17 25.9	0.555621	17 23.5	17 41 3.2	0 56 50.9	1509506
Sept. 1	4 6 37.27	19 24 10.6	0.527958	17 21.7	18 17 17.5	0 55 50.3	1512303
2	4 8 41.77	19 30 47.1	0.500095	17 19.8	18 53 28.8	0 54 49.4	1515128
3	4 10 45.05	19 37 15.5	0.472033	17 17.9	19 29 37.3	0 53 48.3	1517981

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>h m s</div> <div>° ' "</div> <div>9</div> <div>h m</div> <div>° ' "</div> <div>South.</div> <div>°</div> </div>							
Sept. 3	4 10 45.05	19 37 15.5	.9472033	17 17.9	19 29 37.3	0 53 48.3	.1517981
4	4 12 47.06	19 43 35.9	.9443771	17 16.0	20 5 43.0	0 52 46.8	.1520861
5	4 14 47.75	19 49 48.5	.9415309	17 14.0	20 41 45.7	0 51 45.2	.1523768
6	4 16 47.11	19 55 53.3	.9386649	17 12.1	21 17 45.5	0 50 43.2	.1526702
7	4 18 45.10	20 1 50.3	.9357790	17 10.1	21 53 42.3	0 49 41.0	.1529661
8	4 20 41.66	20 7 39.8	.9328735	17 8.0	22 29 36.2	0 48 38.6	.1532646
9	4 22 36.79	20 13 21.9	.9299482	17 6.0	23 5 27.1	0 47 35.9	.1535656
10	4 24 30.45	20 18 56.7	.9270033	17 4.0	23 41 14.9	0 46 33.0	.1538691
11	4 26 22.58	20 24 24.4	.9240391	17 1.9	24 16 59.7	0 45 29.9	.1541750
12	4 28 13.19	20 29 45.1	.9210556	16 59.7	24 52 41.5	0 44 26.6	.1544833
13	4 30 2.22	20 34 58.9	.9180527	16 57.6	25 28 20.2	0 43 23.1	.1547940
14	4 31 49.62	20 40 6.1	.9150306	16 55.4	26 3 55.9	0 42 19.4	.1551070
15	4 33 35.37	20 45 6.6	.9119890	16 53.2	26 39 28.4	0 41 15.5	.1554223
16	4 35 19.44	20 50 0.6	.9089278	16 51.0	27 14 57.9	0 40 11.5	.1557398
17	4 37 1.72	20 54 48.3	.9058471	16 48.7	27 50 24.1	0 39 7.3	.1560594
18	4 38 42.23	20 59 29.8	.9027469	16 46.5	28 25 47.3	0 38 2.9	.1563813
19	4 40 20.89	21 4 5.3	.8996272	16 44.2	29 1 7.3	0 36 58.4	.1567053
20	4 41 57.61	21 8 35.1	.8964882	16 41.8	29 36 24.1	0 35 53.7	.1570313
21	4 43 32.39	21 12 59.1	.8933302	16 39.4	30 11 37.8	0 34 48.9	.1573594
22	4 45 5.15	21 17 17.6	.8901536	16 37.0	30 46 48.2	0 33 44.0	.1576895
23	4 46 35.80	21 21 30.7	.8869589	16 34.5	31 21 55.4	0 32 39.0	.1580215
24	4 48 4.35	21 25 38.6	.8837468	16 32.1	31 56 59.3	0 31 33.9	.1583554
25	4 49 30.72	21 29 41.4	.8805180	16 29.5	32 32 0.0	0 30 28.7	.1586911
26	4 50 54.80	21 33 39.5	.8772730	16 27.0	33 6 57.4	0 29 23.4	.1590287
27	4 52 16.61	21 37 32.7	.8740127	16 24.4	33 41 51.6	0 28 18.0	.1593680
28	4 53 36.05	21 41 21.4	.8707379	16 21.7	34 16 42.4	0 27 12.5	.1597091
29	4 54 53.03	21 45 5.8	.8674493	16 19.1	34 51 30.0	0 26 7.0	.1600518
30	4 56 7.57	21 48 45.8	.8641482	16 16.3	35 26 14.2	0 25 1.4	.1603962
Oct. 1	4 57 19.58	21 52 21.7	.8608354	16 13.6	36 0 55.1	0 23 55.8	.1607421
2	4 58 28.97	21 55 53.8	.8575121	16 10.8	36 35 32.6	0 22 50.1	.1610897
3	4 59 35.74	21 59 22.0	.8541795	16 7.9	37 10 6.8	0 21 44.4	.1614387
4	5 0 39.80	22 2 46.7	.8508389	16 5.0	37 44 37.6	0 20 38.7	.1617891
5	5 1 41.07	22 6 8.0	.8474911	16 2.0	38 19 5.0	0 19 32.9	.1621410
6	5 2 39.56	22 9 26.0	.8441383	15 59.1	38 53 29.1	0 18 27.2	.1624943
7	5 3 35.18	22 12 40.9	.8407818	15 56.0	39 27 49.9	0 17 21.4	.1628490
8	5 4 27.87	22 15 52.8	.8374224	15 52.9	40 2 7.2	0 16 15.7	.1632049
9	5 5 17.61	22 19 1.8	.8340626	15 49.8	40 36 21.2	0 15 9.9	.1635621
10	5 6 4.34	22 22 8.1	.8307036	15 46.6	41 10 31.8	0 14 4.2	.1639206
11	5 6 47.98	22 25 11.8	.8273468	15 43.4	41 44 39.0	0 12 58.5	.1642802
12	5 7 28.53	22 28 13.0	.8239942	15 40.1	42 18 42.8	0 11 52.8	.1646409
13	5 8 5.91	22 31 11.8	.8206474	15 36.7	42 52 43.2	0 10 47.2	.1650028
14	5 8 40.03	22 34 8.4	.8173077	15 33.3	43 26 40.2	0 9 41.6	.1653657

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>° ' "</div> </div> <div> <div>North.</div> <div>° ' "</div> </div> <div>9</div> <div>h m</div> <div>° ' "</div> <div>South.</div> <div>° ' "</div> <div>o</div> </div>							
Oct. 14	5 8 40.03	22 34 8.4	·8173077	15 33.3	43 26 40.2	0 9 41.6	·1653657
15	5 9 10.88	22 37 2.6	·8139772	15 29.9	44 0 33.9	0 8 36.0	·1657296
16	5 9 38.37	22 39 54.7	·8106577	15 26.4	44 34 24.1	0 7 30.6	·1660945
17	5 10 2.42	22 42 44.7	·8073514	15 22.8	45 8 10.9	0 6 25.2	·1664603
18	5 10 23.02	22 45 32.6	·8040610	15 19.1	45 41 54.3	0 5 19.8	·1668271
19	5 10 40.07	22 48 18.7	·8007889	15 15.5	46 15 34.2	0 4 14.6	·1671947
20	5 10 53.51	22 51 2.7	·7975377	15 11.7	46 49 10.8	0 3 9.4	·1675631
21	5 11 3.33	22 53 44.8	·7943111	15 7.9	47 22 43.9	0 2 4.3	·1679322
22	5 11 9.44	22 56 24.9	·7911119	15 4.0	47 56 13.6	0 0 59.3	·1683021
North.							
23	5 11 11.79	22 59 2.9	·7879432	15 0.1	48 29 39.9	0 0 5.5	·1686727
24	5 11 10.38	23 1 38.8	·7848091	14 56.1	49 3 2.8	0 1 10.3	·1690440
25	5 11 5.12	23 4 12.5	·7817130	14 52.0	49 36 22.2	0 2 14.9	·1694159
26	5 10 56.01	23 6 43.8	·7786583	14 47.9	50 9 38.3	0 3 19.5	·1697883
27	5 10 43.03	23 9 12.8	·7756497	14 43.7	50 42 50.8	0 4 23.8	·1701613
28	5 10 26.12	23 11 39.4	·7726907	14 39.5	51 16 0.0	0 5 28.1	·1705347
29	5 10 5.30	23 14 3.2	·7697853	14 35.2	51 49 5.8	0 6 32.2	·1709087
30	5 9 40.57	23 16 24.1	·7669382	14 30.8	52 22 8.1	0 7 36.2	·1712830
31	5 9 11.88	23 18 41.9	·7641535	14 26.3	52 55 7.1	0 8 40.0	·1716578
Nov. 1	5 8 39.31	23 20 56.4	·7614357	14 21.8	53 28 2.6	0 9 43.6	·1720329
2	5 8 2.86	23 23 7.4	·7587899	14 17.3	54 0 54.7	0 10 47.1	·1724084
3	5 7 22.56	23 25 14.8	·7562206	14 12.6	54 33 43.4	0 11 50.5	·1727841
4	5 6 38.42	23 27 18.2	·7537322	14 7.9	55 6 28.8	0 12 53.6	·1731600
5	5 5 50.55	23 29 17.4	·7513293	14 3.2	55 39 10.7	0 13 56.6	·1735362
6	5 4 58.95	23 31 12.1	·7490163	13 58.3	56 11 49.2	0 14 59.4	·1739126
7	5 4 3.72	23 33 2.1	·7467975	13 53.5	56 44 24.4	0 16 2.0	·1742890
8	5 3 4.95	23 34 46.9	·7446780	13 48.5	57 16 56.2	0 17 4.4	·1746656
9	5 2 2.68	23 36 26.4	·7426620	13 43.5	57 49 24.6	0 18 6.6	·1750423
10	5 0 57.03	23 38 0.2	·7407535	13 38.5	58 21 49.6	0 19 8.6	·1754190
11	4 59 48.10	23 39 28.0	·7389573	13 33.4	58 54 11.3	0 20 10.4	·1757957
12	4 58 35.97	23 40 49.6	·7372772	13 28.2	59 26 29.6	0 21 12.0	·1761724
13	4 57 20.75	23 42 4.7	·7357171	13 23.0	59 58 44.6	0 22 13.3	·1765490
14	4 56 2.60	23 43 13.1	·7342812	13 17.8	60 30 56.2	0 23 14.5	·1769255
15	4 54 41.58	23 44 14.4	·7329730	13 12.5	61 3 4.5	0 24 15.4	·1773019
16	4 53 17.87	23 45 8.6	·7317968	13 7.1	61 35 9.5	0 25 16.1	·1776781
17	4 51 51.65	23 45 55.2	·7307572	13 1.7	62 7 11.1	0 26 16.5	·1780541
18	4 50 23.02	23 46 34.1	·7298582	12 56.3	62 39 9.4	0 27 16.7	·1784299
19	4 48 52.18	23 47 5.3	·7291026	12 50.8	63 11 4.4	0 28 16.7	·1788054
20	4 47 19.35	23 47 28.4	·7284941	12 45.4	63 42 56.1	0 29 16.4	·1791806
21	4 45 44.68	23 47 43.3	·7280351	12 39.9	64 14 44.6	0 30 15.8	·1795555
22	4 44 8.37	23 47 49.9	·7277284	12 34.3	64 46 29.7	0 31 15.0	·1799300
23	4 42 30.68	23 47 48.3	·7275772	12 28.8	65 18 11.6	0 32 13.9	·1803041
24	4 40 51.77	23 47 38.4	·7275837	12 23.2	65 49 50.2	0 33 12.6	·1806779

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i>	<i>9</i>	<i>h m</i>	<i>North.</i>	<i>o</i>	
Nov. 24	4 40 51.77	23 47 38.4	.7275837	12 23.2	65 49 50.2	0 33 12.6	.1806779
25	4 39 11.87	23 47 20.4	.7277494	12 17.6	66 21 25.5	0 34 11.0	.1810511
26	4 37 31.25	23 46 54.3	.7280757	12 12.0	66 52 57.7	0 35 9.1	.1814239
27	4 35 50.09	23 46 20.2	.7285633	12 6.4	67 24 26.6	0 36 7.0	.1817962
28	4 34 8.65	23 45 38.4	.7292130	12 0.8	67 55 52.2	0 37 4.5	.1821679
29	4 32 27.19	23 44 49.3	.7300250	11 55.2	68 27 14.7	0 38 1.8	.1825391
30	4 30 45.94	23 43 53.0	.7309992	11 49.6	68 58 34.0	0 38 58.8	.1829097
Dec. 1	4 29 5.12	23 42 49.8	.7321345	11 44.0	69 29 50.1	0 39 55.5	.1832796
2	4 27 24.98	23 41 40.4	.7334296	11 38.4	70 1 3.0	0 40 51.9	.1836489
3	4 25 45.76	23 40 24.9	.7348828	11 32.8	70 32 12.7	0 41 48.0	.1840175
4	4 24 7.66	23 39 4.0	.7364922	11 27.3	71 3 19.3	0 42 43.8	.1843854
5	4 22 30.92	23 37 38.2	.7382551	11 21.7	71 34 22.7	0 43 39.3	.1847526
6	4 20 55.77	23 36 7.9	.7401689	11 16.2	72 5 23.0	0 44 34.5	.1851189
7	4 19 22.36	23 34 33.8	.7422304	11 10.8	72 36 20.2	0 45 29.4	.1854845
8	4 17 50.87	23 32 56.5	.7444359	11 5.4	73 7 14.3	0 46 23.9	.1858493
9	4 16 21.51	23 31 16.5	.7467817	11 0.0	73 38 5.3	0 47 18.2	.1862132
10	4 14 54.38	23 29 34.4	.7492642	10 54.6	74 8 53.3	0 48 12.1	.1865762
11	4 13 29.65	23 27 50.8	.7518788	10 49.3	74 39 38.1	0 49 5.7	.1869383
12	4 12 7.48	23 26 6.4	.7546217	10 44.0	75 10 19.9	0 49 59.0	.1872995
13	4 10 47.96	23 24 21.6	.7574891	10 38.9	75 40 58.6	0 50 51.9	.1876597
14	4 9 31.22	23 22 37.0	.7604761	10 33.6	76 11 34.4	0 51 44.6	.1880189
15	4 8 17.40	23 20 53.1	.7635791	10 28.5	76 42 7.1	0 52 36.9	.1883771
16	4 7 6.55	23 19 10.5	.7667935	10 23.4	77 12 36.7	0 53 28.8	.1887342
17	4 5 58.80	23 17 29.9	.7701144	10 18.4	77 43 3.5	0 54 20.4	.1890903
18	4 4 54.24	23 15 51.8	.7735373	10 13.4	78 13 27.2	0 55 11.7	.1894453
19	4 3 52.93	23 14 16.6	.7770582	10 8.5	78 43 48.0	0 56 2.7	.1897992
20	4 2 54.91	23 12 44.8	.7806719	10 3.6	79 14 5.8	0 56 53.3	.1901520
21	4 2 0.29	23 11 16.8	.7843745	9 58.8	79 44 20.7	0 57 43.5	.1905036
22	4 1 9.08	23 9 52.9	.7881616	9 54.0	80 14 32.6	0 58 33.4	.1908541
23	4 0 21.33	23 8 33.8	.7920280	9 49.3	80 44 41.7	0 59 23.0	.1912033
24	3 59 37.10	23 7 19.7	.7959694	9 44.7	81 14 47.9	0 12.2	.1915513
25	3 58 56.40	23 6 11.0	.7999816	9 40.1	81 44 51.2	1 1.1	.1918981
26	3 58 19.24	23 5 8.0	.8040598	9 35.6	82 14 51.6	1 149.6	.1922436
27	3 57 45.68	23 4 11.1	.8081999	9 31.1	82 44 49.2	1 237.7	.1925878
28	3 57 15.67	23 3 20.4	.8123977	9 26.7	83 14 44.0	1 325.5	.1929307
29	3 56 49.26	23 2 36.3	.8166482	9 22.4	83 44 35.9	1 412.9	.1932723
30	3 56 26.46	23 1 59.0	.8209471	9 18.1	84 14 25.1	1 459.9	.1936125
31	3 56 7.20	23 1 28.6	.8252908	9 13.9	84 44 11.4	1 546.6	.1939513
32	3 55 51.51	23 1 5.3	.8296744	9 9.7	85 13 55.0	1 633.0	.1942888

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>° ' "</div> </div> <div> <div>South.</div> <div>° ' "</div> </div> <div> <div>°</div> </div> <div> <div>h m</div> <div>° ' "</div> </div> <div> <div>North.</div> <div>° ' "</div> </div> <div> <div>°</div> </div> </div>							
Jan. 1	15 13 17.11	16 55 54.0	.7781736	20 28.9	222 30 58.0	5 36.0	.7339716
2	15 13 59.69	16 58 37.0	.7772590	20 25.7	222 35 53.6	5 32.5	.7339573
3	15 14 41.92	17 1 17.9	.7763317	20 22.4	222 40 9.2	5 29.0	.7339429
4	15 15 23.81	17 3 56.6	.7753916	20 19.2	222 44 44.8	5 25.5	.7339285
5	15 16 5.34	17 6 33.2	.7744387	20 15.9	222 49 20.4	5 22.0	.7339141
6	15 16 46.51	17 9 7.6	.7734733	20 12.7	222 53 56.1	5 18.5	.7338996
7	15 17 27.30	17 11 39.9	.7724956	20 9.4	222 58 31.7	5 15.0	.7338851
8	15 18 7.70	17 14 10.0	.7715055	20 6.2	223 3 7.4	5 11.5	.7338706
9	15 18 47.72	17 16 37.9	.7705034	20 2.9	223 7 43.1	5 7.9	.7338560
10	15 19 27.33	17 19 3.6	.7694893	19 59.6	223 12 18.8	5 4.4	.7338414
11	15 20 6.54	17 21 27.1	.7684634	19 56.3	223 16 54.5	5 0.9	.7338268
12	15 20 45.33	17 23 48.4	.7674259	19 53.0	223 21 30.3	4 57.3	.7338121
13	15 21 23.70	17 26 7.5	.7663769	19 49.7	223 26 6.0	4 53.7	.7337973
14	15 22 1.64	17 28 24.3	.7653166	19 46.4	223 30 41.8	4 50.2	.7337826
15	15 22 39.14	17 30 38.5	.7642451	19 43.1	223 35 17.6	4 46.6	.7337678
16	15 23 16.20	17 32 51.1	.7631626	19 39.8	223 39 53.4	4 43.0	.7337530
17	15 23 52.81	17 35 1.1	.7620693	19 36.4	223 44 29.2	4 39.4	.7337381
18	15 24 28.95	17 37 8.8	.7609652	19 33.1	223 49 5.1	4 35.8	.7337232
19	15 25 4.63	17 39 14.2	.7598506	19 29.8	223 53 40.9	4 32.2	.7337083
20	15 25 39.84	17 41 17.3	.7587256	19 26.4	223 58 16.8	4 28.6	.7336933
21	15 25 14.58	17 43 18.1	.7575905	19 23.1	224 2 52.7	4 25.0	.7336783
22	15 26 48.82	17 45 16.6	.7564452	19 19.7	224 7 28.6	4 21.3	.7336632
23	15 27 22.57	17 47 12.8	.7552901	19 16.3	224 12 4.5	4 17.7	.7336482
24	15 27 55.82	17 49 6.7	.7541252	19 12.9	224 16 40.5	4 14.0	.7336331
25	15 28 28.57	17 50 58.2	.7529508	19 9.5	224 21 16.5	4 10.4	.7336179
26	15 29 0.80	17 52 47.4	.7517669	19 6.1	224 25 52.4	4 6.7	.7336027
27	15 29 32.50	17 54 34.3	.7505738	19 2.7	224 30 28.4	4 3.1	.7335875
28	15 30 3.68	17 56 18.8	.7493716	18 59.3	224 35 4.5	3 59.4	.7335723
29	15 30 34.32	17 58 0.9	.7481605	18 55.8	224 39 40.5	3 55.7	.7335570
30	15 31 4.41	17 59 40.6	.7469407	18 52.4	224 44 16.6	3 52.0	.7335417
31	15 31 33.94	18 1 18.0	.7457124	18 49.0	224 48 52.6	3 48.4	.7335264
Feb. 1	15 32 2.91	18 2 53.0	.7444759	18 45.5	224 53 28.7	3 44.7	.7335110
2	15 32 31.31	18 4 25.5	.7432312	18 42.0	224 58 4.8	3 40.9	.7334956
3	15 32 59.12	18 5 55.7	.7419787	18 38.6	225 2 41.0	3 37.2	.7334801
4	15 33 26.34	18 7 23.5	.7407186	18 35.1	225 7 17.1	3 33.5	.7334646
5	15 33 52.97	18 8 48.8	.7394512	18 31.6	225 11 53.3	3 29.8	.7334491
6	15 34 18.99	18 10 11.8	.7381767	18 28.1	225 16 29.5	3 26.0	.7334336
7	15 34 44.39	18 11 32.3	.7368954	18 24.5	225 21 5.7	3 22.3	.7334180
8	15 35 9.17	18 12 50.3	.7356076	18 21.0	225 25 41.9	3 18.6	.7334024
9	15 35 33.33	18 14 5.9	.7343136	18 17.5	225 30 18.1	3 14.8	.7333867
10	15 35 56.85	18 15 19.0	.7330138	18 13.9	225 34 54.3	3 11.0	.7333710
11	15 36 19.73	18 16 29.7	.7317083	18 10.4	225 39 30.6	3 7.3	.7333553

MEAN TIME.

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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>°</i>
Feb. 11	15 36 19.73	18 16 29.7	7317083	18 10.4	225 39 30.6	1 3 7.3	7333553
12	15 36 41.97	18 17 37.9	7303976	18 6.8	225 44 6.9	1 3 3.5	7333395
13	15 37 3.55	18 18 43.7	7290818	18 3.2	225 48 43.2	1 2 59.7	7333237
14	15 37 24.47	18 19 47.0	7277614	17 59.6	225 53 19.5	1 2 55.9	7333079
15	15 37 44.72	18 20 47.8	7264366	17 56.0	225 57 55.8	1 2 52.1	7332921
16	15 38 4.30	18 21 46.2	7251078	17 52.4	226 2 32.2	1 2 48.3	7332762
17	15 38 23.21	18 22 42.1	7237753	17 48.8	226 7 8.6	1 2 44.5	7332603
18	15 38 41.43	18 23 35.5	7224394	17 45.1	226 11 45.0	1 2 40.7	7332443
19	15 38 58.97	18 24 26.5	7211003	17 41.5	226 16 21.4	1 2 36.9	7332283
20	15 39 15.81	18 25 15.0	7197584	17 37.8	226 20 57.8	1 2 33.0	7332123
21	15 39 31.95	18 26 1.0	7184141	17 34.2	226 25 34.3	1 2 29.2	7331962
22	15 39 47.39	18 26 44.6	7170677	17 30.5	226 30 10.7	1 2 25.3	7331801
23	15 40 2.12	18 27 25.6	7157194	17 26.8	226 34 47.2	1 2 21.5	7331640
24	15 40 16.14	18 28 4.2	7143697	17 23.1	226 39 23.7	1 2 17.6	7331479
25	15 40 29.44	18 28 40.3	7130189	17 19.3	226 44 0.3	1 2 13.8	7331317
26	15 40 42.01	18 29 13.9	7116673	17 15.6	226 48 36.8	1 2 9.9	7331155
27	15 40 53.85	18 29 45.0	7103153	17 11.9	226 53 13.4	1 2 6.0	7330992
28	15 41 4.96	18 30 13.6	7089632	17 8.1	226 57 50.0	1 2 2.1	7330829
29	15 41 15.32	18 30 39.6	7076115	17 4.3	227 2 26.6	1 1 58.2	7330666
Mar. 1	15 41 24.94	18 31 3.2	7062605	17 0.5	227 7 3.2	1 1 54.3	7330503
2	15 41 33.81	18 31 24.2	7049106	16 56.7	227 11 39.8	1 1 50.4	7330339
3	15 41 41.93	18 31 42.8	7035624	16 52.9	227 16 16.5	1 1 46.5	7330175
4	15 41 49.28	18 31 58.8	7022161	16 49.1	227 20 53.2	1 1 42.6	7330011
5	15 41 55.86	18 32 12.4	7008722	16 45.3	227 25 29.9	1 1 38.6	7329846
6	15 42 1.68	18 32 23.4	6995313	16 41.4	227 30 6.6	1 1 34.7	7329681
7	15 42 6.72	18 32 31.9	6981938	16 37.6	227 34 43.4	1 1 30.8	7329516
8	15 42 11.00	18 32 38.0	6968602	16 33.7	227 39 20.1	1 1 26.8	7329350
9	15 42 14.50	18 32 41.5	6955309	16 29.9	227 43 56.9	1 1 22.9	7329184
10	15 42 17.22	18 32 42.5	6942064	16 26.0	227 48 33.7	1 1 18.9	7329017
11	15 42 19.17	18 32 41.0	6928874	16 22.0	227 53 10.5	1 1 14.9	7328850
12	15 42 20.35	18 32 37.0	6915741	16 18.1	227 57 47.4	1 1 11.0	7328684
13	15 42 20.75	18 32 30.5	6902672	16 14.2	228 2 24.2	1 1 7.0	7328516
14	15 42 20.38	18 32 21.5	6889671	16 10.2	228 7 1.1	1 1 3.0	7328349
15	15 42 19.23	18 32 10.0	6876742	16 6.3	228 11 38.0	1 0 59.0	7328181
16	15 42 17.31	18 31 56.1	6863891	16 2.3	228 16 14.9	1 0 55.0	7328013
17	15 42 14.62	18 31 39.8	6851123	15 58.3	228 20 51.9	1 0 51.0	7327844
18	15 42 11.17	18 31 21.0	6838443	15 54.3	228 25 28.9	1 0 46.9	7327675
19	15 42 6.94	18 30 59.8	6825854	15 50.3	228 30 5.9	1 0 42.9	7327506
20	15 42 1.95	18 30 36.1	6813361	15 46.3	228 34 42.9	1 0 38.9	7327337
21	15 41 56.20	18 30 10.0	6800970	15 42.3	228 39 19.9	1 0 34.8	7327167
22	15 41 49.69	18 29 41.5	6788685	15 38.2	228 43 57.0	1 0 30.8	7326997
23	15 41 42.43	18 29 10.6	6776511	15 34.2	228 48 34.1	1 0 26.7	7326826

MEAN TIME.

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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	°	h m	° ' "	North. ° ' "	°
Mar. 23	15 41 42.43	18 29 10.6	6776511	15 34.2	228 48 34.1	1 0 26.7	7326826
24	15 41 34.41	18 28 37.2	6764452	15 30.1	228 53 11.2	1 0 22.7	7326656
25	15 41 25.65	18 28 1.5	6752514	15 26.0	228 57 48.3	1 0 18.6	7326485
26	15 41 16.14	18 27 23.3	6740702	15 21.9	229 2 25.4	1 0 14.5	7326313
27	15 41 5.88	18 26 42.9	6729020	15 17.8	229 7 2.6	1 0 10.5	7326142
28	15 40 54.89	18 26 0.0	6717474	15 13.7	229 11 39.8	1 0 6.4	7325970
29	15 40 43.17	18 25 14.9	6706069	15 9.5	229 16 17.0	1 0 2.3	7325797
30	15 40 30.71	18 24 27.4	6694811	15 5.4	229 20 54.3	0 59 58.2	7325625
31	15 40 17.54	18 23 37.6	6683704	15 1.2	229 25 31.5	0 59 54.1	7325452
Apr. 1	15 40 3.65	18 22 45.6	6672756	14 57.1	229 30 8.8	0 59 50.0	7325278
2	15 39 49.05	18 21 51.3	6661969	14 52.9	229 34 46.1	0 59 45.8	7325105
3	15 39 33.75	18 20 54.7	6651351	14 48.7	229 39 23.4	0 59 41.7	7324931
4	15 39 17.76	18 19 55.9	6640907	14 44.5	229 44 0.8	0 59 37.6	7324757
5	15 39 1.09	18 18 54.9	6630642	14 40.3	229 48 38.1	0 59 33.4	7324582
6	15 38 43.74	18 17 51.7	6620562	14 36.0	229 53 15.5	0 59 29.3	7324407
7	15 38 25.74	18 16 46.4	6610671	14 31.8	229 57 52.9	0 59 25.1	7324232
8	15 38 7.09	18 15 38.9	6600975	14 27.6	230 2 30.3	0 59 21.0	7324057
9	15 37 47.81	18 14 29.4	6591479	14 23.3	230 7 7.8	0 59 16.8	7323881
10	15 37 27.91	18 13 17.9	6582189	14 19.0	230 11 45.3	0 59 12.6	7323705
11	15 37 7.39	18 12 4.3	6573109	14 14.8	230 16 22.8	0 59 8.4	7323528
12	15 36 46.28	18 10 48.8	6564244	14 10.5	230 21 0.3	0 59 4.3	7323352
13	15 36 24.59	18 9 31.3	6555597	14 6.2	230 25 37.9	0 59 0.1	7323174
14	15 36 2.33	18 8 11.9	6547174	14 1.9	230 30 15.5	0 58 55.9	7322997
15	15 35 39.52	18 6 50.7	6538979	13 57.6	230 34 53.1	0 58 51.6	7322819
16	15 35 16.17	18 5 27.7	6531016	13 53.2	230 39 30.7	0 58 47.4	7322641
17	15 34 52.30	18 4 2.9	6523289	13 48.9	230 44 8.3	0 58 43.2	7322463
18	15 34 27.92	18 2 36.4	6515801	13 44.6	230 48 46.0	0 58 39.0	7322284
19	15 34 3.05	18 1 8.2	6508557	13 40.2	230 53 23.7	0 58 34.7	7322105
20	15 33 37.71	17 59 38.4	6501559	13 35.8	230 58 1.4	0 58 30.5	7321926
21	15 33 11.91	17 58 7.0	6494813	13 31.5	231 2 39.2	0 58 26.2	7321746
22	15 32 45.67	17 56 34.1	6488320	13 27.1	231 7 16.9	0 58 22.0	7321566
23	15 32 19.00	17 54 59.6	6482084	13 22.7	231 11 54.7	0 58 17.7	7321386
24	15 31 51.93	17 53 23.8	6476110	13 18.4	231 16 32.6	0 58 13.5	7321205
25	15 31 24.46	17 51 46.5	6470400	13 14.0	231 21 10.4	0 58 9.2	7321024
26	15 30 56.62	17 50 8.0	6464959	13 9.6	231 25 48.3	0 58 4.9	7320843
27	15 30 28.43	17 48 28.1	6459788	13 5.2	231 30 26.2	0 58 0.6	7320661
28	15 29 59.89	17 46 47.1	6454892	13 0.8	231 35 4.1	0 57 56.3	7320479
29	15 29 31.04	17 45 4.9	6450273	12 56.4	231 39 42.0	0 57 52.0	7320297
30	15 29 1.89	17 43 21.6	6445934	12 51.9	231 44 20.0	0 57 47.7	7320115
May 1	15 28 32.45	17 41 37.3	6441879	12 47.5	231 48 58.0	0 57 43.4	7319932
2	15 28 2.76	17 39 52.1	6438110	12 43.1	231 53 36.0	0 57 39.1	7319748
3	15 27 32.84	17 38 5.9	6434628	12 38.7	231 58 14.0	0 57 34.7	7319565

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North.</i> <i>° ' "</i>	<i>°</i>
May 3	15 27 32.84	17 38 5.9	6434628	12 38.7	231 58 14.0	0 57 34.7	7319565
4	15 27 2.70	17 36 18.9	6431438	12 34.2	232 2 52.1	0 57 30.4	7319381
5	15 26 32.36	17 34 31.2	6428539	12 29.8	232 7 30.1	0 57 26.0	7319197
6	15 26 1.85	17 32 42.8	6425935	12 25.4	232 12 8.2	0 57 21.7	7319012
7	15 25 31.20	17 30 53.9	6423626	12 20.9	232 16 46.4	0 57 17.3	7318828
8	15 25 0.41	17 29 4.5	6421613	12 16.5	232 21 24.5	0 57 13.0	7318643
9	15 24 29.52	17 27 14.6	6419898	12 12.0	232 26 2.7	0 57 8.6	7318457
10	15 23 58.56	17 25 24.4	6418482	12 7.6	232 30 40.9	0 57 4.2	7318271
11	15 23 27.53	17 23 33.9	6417364	12 3.1	232 35 19.1	0 56 59.8	7318085
12	15 22 56.48	17 21 43.3	6416545	11 58.7	232 39 57.4	0 56 55.4	7317899
13	15 22 25.41	17 19 52.6	6416025	11 54.2	232 44 35.7	0 56 51.0	7317712
14	15 21 54.34	17 18 1.8	6415802	11 49.8	232 49 14.0	0 56 46.6	7317525
15	15 21 23.31	17 16 11.1	6415878	11 45.3	232 53 52.3	0 56 42.2	7317338
16	15 20 52.33	17 14 20.5	6416250	11 40.9	232 58 30.7	0 56 37.8	7317150
17	15 20 21.43	17 12 30.1	6416919	11 36.5	233 3 9.1	0 56 33.4	7316962
18	15 19 50.62	17 10 40.0	6417883	11 32.0	233 7 47.5	0 56 29.0	7316774
19	15 19 19.92	17 8 50.2	6419141	11 27.6	233 12 25.9	0 56 24.5	7316585
20	15 18 49.35	17 7 1.0	6420692	11 23.1	233 17 4.4	0 56 20.1	7316396
21	15 18 18.94	17 5 12.2	6422534	11 18.7	233 21 42.9	0 56 15.6	7316207
22	15 17 48.70	17 3 24.1	6424666	11 14.3	233 26 21.4	0 56 11.2	7316017
23	15 17 18.64	17 1 36.6	6427086	11 9.8	233 30 59.9	0 56 6.7	7315827
24	15 16 48.80	16 59 50.0	6429793	11 5.4	233 35 38.5	0 56 2.2	7315637
25	15 16 19.19	16 58 4.2	6432786	11 1.0	233 40 17.1	0 55 57.8	7315446
26	15 15 49.83	16 56 19.3	6436061	10 56.6	233 44 55.7	0 55 53.3	7315255
27	15 15 20.74	16 54 35.5	6439618	10 52.1	233 49 34.3	0 55 48.8	7315064
28	15 14 51.93	16 52 52.7	6443454	10 47.7	233 54 13.0	0 55 44.3	7314873
29	15 14 23.44	16 51 11.1	6447566	10 43.3	233 58 51.7	0 55 39.8	7314681
30	15 13 55.27	16 49 30.8	6451953	10 38.9	234 3 30.4	0 55 35.3	7314488
31	15 13 27.44	16 47 51.7	6456611	10 34.6	234 8 9.1	0 55 30.8	7314296
June 1	15 12 59.97	16 46 14.1	6461538	10 30.2	234 12 47.9	0 55 26.2	7314103
2	15 12 32.89	16 44 38.0	6466731	10 25.8	234 17 26.7	0 55 21.7	7313910
3	15 12 6.20	16 43 3.4	6472187	10 21.4	234 22 5.5	0 55 17.2	7313716
4	15 11 39.94	16 41 30.4	6477902	10 17.1	234 26 44.3	0 55 12.6	7313522
5	15 11 14.11	16 39 59.1	6483871	10 12.7	234 31 23.2	0 55 8.1	7313328
6	15 10 48.73	16 38 29.7	6490092	10 8.4	234 36 2.1	0 55 3.5	7313134
7	15 10 23.82	16 37 2.0	6496560	10 4.0	234 40 41.0	0 54 59.0	7312939
8	15 9 59.39	16 35 36.3	6503271	9 59.7	234 45 19.9	0 54 54.4	7312744
9	15 9 35.47	16 34 12.6	6510220	9 55.4	234 49 58.9	0 54 49.8	7312548
10	15 9 12.06	16 32 51.0	6517403	9 51.1	234 54 37.9	0 54 45.2	7312353
11	15 8 49.18	16 31 31.6	6524816	9 46.8	234 59 16.9	0 54 40.7	7312156
12	15 8 26.84	16 30 14.3	6532453	9 42.5	235 3 55.9	0 54 36.1	7311960
13	15 8 5.04	16 28 59.2	6540310	9 38.2	235 8 35.0	0 54 31.5	7311763

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>h m s</div> <div>° ' "</div> <div>°</div> </div>							
June 13	15 8 5.04	16 28 59.2	6540310	9 38.2	235 8 35.0	0 54 31.5	7311763
14	15 7 43.81	16 27 46.4	6548382	9 33.9	235 13 14.1	0 54 26.9	7311566
15	15 7 23.16	16 26 35.9	6556664	9 29.6	235 17 53.2	0 54 22.2	7311368
16	15 7 3.09	16 25 27.9	6565152	9 25.4	235 22 32.3	0 54 17.6	7311171
17	15 6 43.61	16 24 22.2	6573841	9 21.1	235 27 11.5	0 54 13.0	7310972
18	15 6 24.74	16 23 19.1	6582726	9 16.9	235 31 50.7	0 54 8.4	7310774
19	15 6 6.48	16 22 18.5	6591803	9 12.6	235 36 29.9	0 54 3.7	7310576
20	15 5 48.84	16 21 20.4	6601066	9 8.4	235 41 9.2	0 53 59.1	7310377
21	15 5 31.83	16 20 25.0	6610510	9 4.2	235 45 48.4	0 53 54.4	7310177
22	15 5 15.46	16 19 32.3	6620132	9 0.0	235 50 27.7	0 53 49.8	7309978
23	15 4 59.73	16 18 42.2	6629926	8 55.8	235 55 7.0	0 53 45.1	7309778
24	15 4 44.66	16 17 54.9	6639888	8 51.6	235 59 46.4	0 53 40.4	7309578
25	15 4 30.24	16 17 10.4	6650014	8 47.5	236 4 25.8	0 53 35.8	7309377
26	15 4 16.50	16 16 28.6	6660299	8 43.3	236 9 5.2	0 53 31.1	7309176
27	15 4 3.43	16 15 49.6	6670739	8 39.2	236 13 44.6	0 53 26.4	7308975
28	15 3 51.04	16 15 13.5	6681327	8 35.0	236 18 24.0	0 53 21.7	7308773
29	15 3 39.33	16 14 40.3	6692061	8 30.9	236 23 3.5	0 53 17.0	7308572
30	15 3 28.32	16 14 10.0	6702934	8 26.8	236 27 43.0	0 53 12.3	7308370
July 1	15 3 18.01	16 13 42.6	6713942	8 22.7	236 32 22.5	0 53 7.6	7308167
2	15 3 8.41	16 13 18.1	6725080	8 18.6	236 37 2.1	0 53 2.9	7307964
3	15 2 59.52	16 12 56.7	6736343	8 14.5	236 41 41.7	0 52 58.1	7307761
4	15 2 51.34	16 12 38.3	6747726	8 10.5	236 46 21.3	0 52 53.4	7307558
5	15 2 43.89	16 12 23.0	6759223	8 6.4	236 51 0.9	0 52 48.7	7307354
6	15 2 37.15	16 12 10.7	6770828	8 2.4	236 55 40.5	0 52 43.9	7307150
7	15 2 31.13	16 12 1.4	6782538	7 58.4	237 0 20.2	0 52 39.2	7306946
8	15 2 25.84	16 11 55.1	6794346	7 54.3	237 4 59.9	0 52 34.4	7306741
9	15 2 21.28	16 11 51.9	6806247	7 50.3	237 9 39.6	0 52 29.6	7306536
10	15 2 17.45	16 11 51.8	6818236	7 46.4	237 14 19.4	0 52 24.9	7306331
11	15 2 14.35	16 11 54.7	6830309	7 42.4	237 18 59.1	0 52 20.1	7306125
12	15 2 11.98	16 12 0.6	6842461	7 38.4	237 23 38.9	0 52 15.3	7305919
13	15 2 10.33	16 12 9.6	6854687	7 34.5	237 28 18.8	0 52 10.5	7305713
14	15 2 9.42	16 12 21.7	6866982	7 30.5	237 32 58.6	0 52 5.7	7305507
15	15 2 9.23	16 12 36.8	6879342	7 26.6	237 37 38.5	0 52 0.9	7305300
16	15 2 9.77	16 12 55.0	6891762	7 22.7	237 42 18.4	0 51 56.1	7305093
17	15 2 11.03	16 13 16.2	6904238	7 18.8	237 46 58.3	0 51 51.3	7304885
18	15 2 13.02	16 13 40.3	6916767	7 14.9	237 51 38.3	0 51 46.4	7304678
19	15 2 15.72	16 14 7.5	6929343	7 11.0	237 56 18.3	0 51 41.6	7304470
20	15 2 19.15	16 14 37.7	6941963	7 7.1	238 0 58.3	0 51 36.8	7304261
21	15 2 23.29	16 15 10.8	6954623	7 3.2	238 5 38.3	0 51 31.9	7304053
22	15 2 28.14	16 15 46.9	6967319	6 59.4	238 10 18.3	0 51 27.1	7303844
23	15 2 33.71	16 16 26.0	6980047	6 55.6	238 14 58.4	0 51 22.2	7303635
24	15 2 39.99	16 17 7.9	6992804	6 51.7	238 19 38.5	0 51 17.4	7303425

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>°</i>
July 24	15 2 39.99	16 17 7.9	6992804	6 51.7	238 19 38.5	0 51 17.4	7303425
25	15 2 46.98	16 17 52.8	7005587	6 47.9	238 24 18.7	0 51 12.5	7303216
26	15 2 54.68	16 18 40.6	7018390	6 44.1	238 28 58.8	0 51 7.6	7303006
27	15 3 3.09	16 19 31.2	7031212	6 40.3	238 33 39.0	0 51 2.8	7302795
28	15 3 12.20	16 20 24.8	7044048	6 36.5	238 38 19.2	0 50 57.9	7302585
29	15 3 22.02	16 21 21.1	7056894	6 32.8	238 42 59.4	0 50 53.0	7302374
30	15 3 32.54	16 22 20.3	7069745	6 29.0	238 47 39.7	0 50 48.1	7302163
31	15 3 43.76	16 23 22.2	7082599	6 25.3	238 52 20.0	0 50 43.2	7301951
Aug. 1	15 3 55.67	16 24 27.0	7095451	6 21.6	238 57 0.3	0 50 38.3	7301740
2	15 4 8.27	16 25 34.5	7108297	6 17.8	239 1 40.6	0 50 33.4	7301527
3	15 4 21.56	16 26 44.7	7121134	6 14.1	239 6 21.0	0 50 28.4	7301315
4	15 4 35.53	16 27 57.6	7133958	6 10.4	239 11 1.4	0 50 23.5	7301103
5	15 4 50.19	16 29 13.2	7146766	6 6.8	239 15 41.8	0 50 18.6	7300890
6	15 5 5.51	16 30 31.3	7159554	6 3.1	239 20 22.2	0 50 13.6	7300676
7	15 5 21.51	16 31 52.1	7172320	5 59.4	239 25 2.7	0 50 8.7	7300463
8	15 5 38.18	16 33 15.4	7185060	5 55.8	239 29 43.2	0 50 3.8	7300249
9	15 5 55.50	16 34 41.2	7197771	5 52.1	239 34 23.7	0 49 58.8	7300036
10	15 6 13.49	16 36 9.5	7210450	5 48.5	239 39 4.2	0 49 53.8	7299821
11	15 6 32.12	16 37 40.2	7223093	5 44.9	239 43 44.8	0 49 48.9	7299607
12	15 6 51.39	16 39 13.3	7235698	5 41.2	239 48 25.4	0 49 43.9	7299392
13	15 7 11.30	16 40 48.9	7248262	5 37.6	239 53 6.0	0 49 38.9	7299177
14	15 7 31.84	16 42 26.8	7260781	5 34.1	239 57 46.6	0 49 33.9	7298962
15	15 7 53.00	16 44 7.1	7273253	5 30.5	240 2 27.3	0 49 29.0	7298746
16	15 8 14.78	16 45 49.6	7285676	5 26.9	240 7 8.0	0 49 24.0	7298530
17	15 8 37.18	16 47 34.3	7298049	5 23.4	240 11 48.7	0 49 19.0	7298314
18	15 9 0.19	16 49 21.2	7310369	5 19.8	240 16 29.5	0 49 13.9	7298098
19	15 9 23.80	16 51 10.3	7322633	5 16.3	240 21 10.2	0 49 8.9	7297881
20	15 9 48.02	16 53 1.5	7334840	5 12.8	240 25 51.0	0 49 3.9	7297664
21	15 10 12.83	16 54 54.7	7346988	5 9.3	240 30 31.9	0 48 58.9	7297447
22	15 10 38.24	16 56 50.0	7359074	5 5.7	240 35 12.7	0 48 53.9	7297229
23	15 11 4.23	16 58 47.3	7371096	5 2.2	240 39 53.6	0 48 48.8	7297011
24	15 11 30.81	17 0 46.5	7383052	4 58.7	240 44 34.5	0 48 43.8	7296793
25	15 11 57.96	17 2 47.6	7394940	4 55.2	240 49 15.5	0 48 38.7	7296575
26	15 12 25.68	17 4 50.7	7406758	4 51.8	240 53 56.4	0 48 33.7	7296356
27	15 12 53.98	17 6 55.6	7418503	4 48.3	240 58 37.4	0 48 28.6	7296137
28	15 13 22.83	17 9 2.4	7430173	4 44.9	241 3 18.4	0 48 23.6	7295918
29	15 13 52.24	17 11 10.9	7441766	4 41.4	241 7 59.5	0 48 18.5	7295698
30	15 14 22.20	17 13 21.2	7453279	4 38.0	241 12 40.5	0 48 13.4	7295479
31	15 14 52.71	17 15 33.1	7464710	4 34.5	241 17 21.6	0 48 8.3	7295259
Sept. 1	15 15 23.77	17 17 46.7	7476057	4 31.1	241 22 2.8	0 48 3.2	7295038
2	15 15 55.36	17 20 1.9	7487319	4 27.7	241 26 43.9	0 47 58.1	7294818
3	15 16 27.48	17 22 18.7	7498492	4 24.3	241 31 25.1	0 47 53.0	7294597

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>° ' "</div> </div> <div> <div>South.</div> <div>° ' "</div> </div> <div> <div>°</div> </div> </div>							
Sept. 3	15 16 27.48	17 22 18.7	7498492	h m	° ' "	North.	°
4	15 17 0.13	17 24 37.0	7509576	4 24.3	241 31 25.1	0 47 53.0	7294597
5	15 17 33.30	17 26 56.8	7520569	4 21.0	241 36 6.3	0 47 47.9	7294375
6	15 18 6.98	17 29 18.1	7531468	4 17.6	241 40 47.5	0 47 42.8	7294154
7	15 18 41.16	17 31 40.8	7542272	4 14.2	241 45 28.8	0 47 37.7	7293932
8	15 19 15.85	17 34 4.8	7552980	4 10.8	241 50 10.1	0 47 32.6	7293710
9	15 19 51.02	17 36 30.1	7563590	4 7.5	241 54 51.4	0 47 27.4	7293487
10	15 20 26.68	17 38 56.8	7574101	4 4.1	241 59 32.7	0 47 22.3	7293265
11	15 21 2.82	17 41 24.6	7584511	4 0.8	242 4 14.1	0 47 17.2	7293042
12	15 21 39.44	17 43 53.7	7594819	3 57.5	242 8 55.5	0 47 12.0	7292818
13	15 22 16.52	17 46 23.9	7605023	3 54.1	242 13 36.9	0 47 6.9	7292595
14	15 22 54.06	17 48 55.2	7615123	3 50.8	242 18 18.4	0 47 1.7	7292371
15	15 23 32.06	17 51 27.6	7625117	3 47.5	242 22 59.9	0 46 56.5	7292147
16	15 24 10.51	17 54 0.9	7635005	3 44.2	242 27 41.4	0 46 51.4	7291923
17	15 24 49.41	17 56 35.3	7644786	3 40.9	242 32 22.9	0 46 46.2	7291698
18	15 25 28.75	17 59 10.6	7654459	3 37.6	242 37 4.5	0 46 41.0	7291473
19	15 26 8.52	18 1 46.8	7664023	3 34.4	242 41 46.1	0 46 35.8	7291248
20	15 26 48.73	18 4 23.9	7673477	3 31.1	242 46 27.7	0 46 30.6	7291023
21	15 27 29.36	18 7 1.8	7682819	3 27.8	242 51 9.4	0 46 25.4	7290797
22	15 28 10.42	18 9 40.5	7692049	3 24.6	242 55 51.1	0 46 20.2	7290571
23	15 28 51.90	18 12 19.9	7701164	3 21.3	243 0 32.8	0 46 15.0	7290345
24	15 29 33.79	18 15 0.1	7710164	3 18.1	243 5 14.5	0 46 9.8	7290118
25	15 30 16.09	18 17 41.0	7719048	3 14.9	243 9 56.3	0 46 4.5	7289892
26	15 30 58.79	18 20 22.5	7727815	3 11.6	243 14 38.1	0 45 59.3	7289665
27	15 31 41.89	18 23 4.6	7736462	3 8.4	243 19 19.9	0 45 54.1	7289437
28	15 32 25.39	18 25 47.3	7744989	3 5.2	243 24 1.8	0 45 48.8	7289210
29	15 33 9.27	18 28 30.5	7753395	3 2.0	243 28 43.7	0 45 43.6	7288982
30	15 33 53.53	18 31 14.2	7761677	2 58.8	243 33 25.6	0 45 38.3	7288754
Oct. 1	15 34 38.16	18 33 58.3	7769834	2 55.6	243 38 7.5	0 45 33.1	7288525
2	15 35 23.17	18 36 42.8	7777867	2 52.4	243 42 49.5	0 45 27.8	7288297
3	15 36 8.53	18 39 27.7	7785773	2 49.2	243 47 31.5	0 45 22.5	7288068
4	15 36 54.25	18 42 12.9	7793553	2 46.0	243 52 13.5	0 45 17.3	7287839
5	15 37 40.32	18 44 58.4	7801205	2 42.8	243 56 55.6	0 45 12.0	7287609
6	15 38 26.73	18 47 44.1	7808730	2 39.7	244 1 37.7	0 45 6.7	7287379
7	15 39 13.49	18 50 30.1	7816125	2 36.5	244 6 19.8	0 45 1.4	7287149
8	15 40 0.58	18 53 16.3	7823391	2 33.4	244 11 1.9	0 44 56.1	7286919
9	15 40 47.99	18 56 2.7	7830527	2 30.2	244 15 44.1	0 44 50.8	7286688
10	15 41 35.73	18 58 49.1	7837533	2 27.1	244 20 26.3	0 44 45.5	7286457
11	15 42 23.78	19 1 35.6	7844407	2 23.9	244 25 8.6	0 44 40.2	7286226
12	15 43 12.14	19 4 22.1	7851149	2 20.8	244 29 50.8	0 44 34.8	7285995
13	15 44 0.80	19 7 8.5	7857759	2 17.7	244 34 33.1	0 44 29.5	7285763
14	15 44 49.76	19 9 54.9	7864237	2 14.5	244 39 15.5	0 44 24.2	7285531
				2 11.4	244 43 57.8	0 44 18.8	7285299

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	°	h m	° ' "	North. ° ' "	°
Oct. 14	15 44 49.76	19 9 54.9	.7864237	2 11.4	244 43 57.8	0 44 18.8	.7285299
15	15 45 39.01	19 12 41.3	.7870582	2 8.3	244 48 40.2	0 44 13.5	.7285067
16	15 46 28.55	19 15 27.5	.7876793	2 5.2	244 53 22.7	0 44 8.1	.7284834
17	15 47 18.38	19 18 13.5	.7882871	2 2.1	244 58 5.1	0 44 2.8	.7284602
18	15 48 8.49	19 20 59.5	.7888814	1 59.0	245 2 47.6	0 43 57.4	.7284368
19	15 48 58.88	19 23 45.3	.7894623	1 55.9	245 7 30.1	0 43 52.1	.7284135
20	15 49 49.53	19 26 30.9	.7900296	1 52.8	245 12 12.7	0 43 46.7	.7283901
21	15 50 40.46	19 29 16.2	.7905833	1 49.7	245 16 55.3	0 43 41.3	.7283667
22	15 51 31.64	19 32 1.1	.7911234	1 46.6	245 21 37.9	0 43 35.9	.7283433
23	15 52 23.08	19 34 45.8	.7916496	1 43.6	245 26 20.5	0 43 30.5	.7283199
24	15 53 14.77	19 37 30.1	.7921620	1 40.5	245 31 3.2	0 43 25.1	.7282964
25	15 54 6.71	19 40 14.0	.7926605	1 37.4	245 35 45.9	0 43 19.7	.7282729
26	15 54 58.90	19 42 57.4	.7931449	1 34.3	245 40 28.7	0 43 14.3	.7282494
27	15 55 51.32	19 45 40.4	.7936153	1 31.3	245 45 11.5	0 43 8.9	.7282258
28	15 56 43.97	19 48 22.9	.7940716	1 28.2	245 49 54.3	0 43 3.5	.7282022
29	15 57 36.84	19 51 4.9	.7945137	1 25.2	245 54 37.1	0 42 58.1	.7281787
30	15 58 29.93	19 53 46.4	.7949416	1 22.1	245 59 20.0	0 42 52.7	.7281551
31	15 59 23.23	19 56 27.3	.7953552	1 19.1	246 4 2.9	0 42 47.2	.7281314
Nov. 1	16 0 16.74	19 59 7.6	.7957544	1 16.0	246 8 45.8	0 42 41.8	.7281077
2	16 1 10.45	20 1 47.2	.7961392	1 13.0	246 13 28.8	0 42 36.4	.7280840
3	16 2 4.35	20 4 26.3	.7965096	1 9.9	246 18 11.8	0 42 30.9	.7280603
4	16 2 58.43	20 7 4.6	.7968656	1 6.9	246 22 54.8	0 42 25.5	.7280365
5	16 3 52.70	20 9 42.2	.7972071	1 3.9	246 27 37.9	0 42 20.0	.7280127
6	16 4 47.14	20 12 19.0	.7975340	1 0.9	246 32 21.0	0 42 14.5	.7279889
7	16 5 41.75	20 14 55.1	.7978464	0 57.8	246 37 4.1	0 42 9.1	.7279651
8	16 6 36.52	20 17 30.3	.7981444	0 54.8	246 41 47.3	0 42 3.6	.7279412
9	16 7 31.45	20 20 4.8	.7984278	0 51.8	246 46 30.5	0 41 58.1	.7279173
10	16 8 26.54	20 22 38.4	.7986967	0 48.8	246 51 13.7	0 41 52.6	.7278934
11	16 9 21.77	20 25 11.1	.7989511	0 45.7	246 55 57.0	0 41 47.2	.7278695
12	16 10 17.15	20 27 42.9	.7991911	0 42.7	247 0 40.3	0 41 41.7	.7278455
13	16 11 12.67	20 30 13.8	.7994165	0 39.7	247 5 23.6	0 41 36.2	.7278216
14	16 12 8.32	20 32 43.8	.7996274	0 36.7	247 10 7.0	0 41 30.7	.7277975
15	16 13 4.10	20 35 12.8	.7998236	0 33.7	247 14 50.4	0 41 25.2	.7277735
16	16 14 0.00	20 37 40.7	.8000053	0 30.7	247 19 33.8	0 41 19.6	.7277494
17	16 14 56.02	20 40 7.7	.8001723	0 27.7	247 24 17.2	0 41 14.1	.7277253
18	16 15 52.15	20 42 33.7	.8003247	0 24.7	247 29 0.7	0 41 8.6	.7277012
19	16 16 48.39	20 44 58.6	.8004623	0 21.7	247 33 44.3	0 41 3.1	.7276771
20	16 17 44.74	20 47 22.5	.8005851	0 18.7	247 38 27.8	0 40 57.5	.7276529
21	16 18 41.17	20 49 45.2	.8006932	0 15.7	247 43 11.4	0 40 52.0	.7276287
22	16 19 37.70	20 52 6.8	.8007864	0 12.7	247 47 55.0	0 40 46.4	.7276045
23	16 20 34.32	20 54 27.3	.8008647	0 9.7	247 52 38.7	0 40 40.9	.7275803
24	16 21 31.01	20 56 46.6	.8009281	0 6.7	247 57 22.3	0 40 35.3	.7275560

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	°	h m	° ' "	North. ° ' "	°
Nov. 24	16 21 31.01	20 56 46.6	8009281	0 6.7	247 57 22.3	0 40 35.3	7275560
25	16 22 27.78	20 59 4.8	8009766	0 3.7	248 2 6.1	0 40 29.8	7275317
26	16 23 24.62	21 1 21.7	8010101	{ 3 17.8 }	248 6 49.8	0 40 24.2	7275074
27	16 24 21.51	21 3 37.5	8010286	23 54.8	248 11 33.6	0 40 18.7	7274831
28	16 25 18.47	21 5 52.0	8010321	23 51.8	248 16 17.4	0 40 13.1	7274587
29	16 26 15.47	21 8 5.3	8010205	23 48.8	248 21 1.3	0 40 7.5	7274343
30	16 27 12.52	21 10 17.4	8009939	23 45.8	248 25 45.1	0 40 1.9	7274099
Dec. 1	16 28 9.61	21 12 28.2	8009522	23 42.8	248 30 29.0	0 39 56.3	7273855
2	16 29 6.73	21 14 37.8	8008955	23 39.8	248 35 13.0	0 39 50.7	7273610
3	16 30 3.88	21 16 46.1	8008237	23 36.8	248 39 57.0	0 39 45.1	7273365
4	16 31 1.04	21 18 53.0	8007369	23 33.9	248 44 41.0	0 39 39.5	7273120
5	16 31 58.21	21 20 58.6	8006351	23 30.9	248 49 25.0	0 39 33.9	7272874
6	16 32 55.38	21 23 2.8	8005183	23 27.9	248 54 9.1	0 39 28.3	7272628
7	16 33 52.54	21 25 5.5	8003865	23 24.9	248 58 53.2	0 39 22.7	7272382
8	16 34 49.70	21 27 6.9	8002397	23 21.9	249 3 37.3	0 39 17.0	7272136
9	16 35 46.84	21 29 6.9	8000780	23 19.0	249 8 21.5	0 39 11.4	7271889
10	16 36 43.96	21 31 5.6	7999013	23 16.0	249 13 5.7	0 39 5.8	7271642
11	16 37 41.06	21 33 2.8	7997098	23 13.0	249 17 49.9	0 39 0.1	7271395
12	16 38 38.13	21 34 58.7	7995034	23 10.0	249 22 34.2	0 38 54.5	7271148
13	16 39 35.16	21 36 53.2	7992822	23 7.0	249 27 18.5	0 38 48.8	7270900
14	16 40 32.15	21 38 46.3	7990461	23 4.0	249 32 2.9	0 38 43.1	7270652
15	16 41 29.09	21 40 37.9	7987951	23 1.0	249 36 47.2	0 38 37.5	7270404
16	16 42 25.98	21 42 28.0	7985292	22 58.0	249 41 31.6	0 38 31.8	7270155
17	16 43 22.81	21 44 16.7	7982485	22 55.0	249 46 16.1	0 38 26.1	7269907
18	16 44 19.58	21 46 3.9	7979529	22 52.0	249 51 0.5	0 38 20.4	7269658
19	16 45 16.27	21 47 49.5	7976424	22 49.1	249 55 45.0	0 38 14.8	7269409
20	16 46 12.89	21 49 33.7	7973170	22 46.1	250 0 29.6	0 38 9.1	7269159
21	16 47 9.43	21 51 16.4	7969767	22 43.1	250 5 14.1	0 38 3.4	7268910
22	16 48 5.88	21 52 57.7	7966215	22 40.1	250 9 58.7	0 37 57.7	7268660
23	16 49 2.23	21 54 37.4	7962513	22 37.1	250 14 43.3	0 37 52.0	7268410
24	16 49 58.48	21 56 15.7	7958662	22 34.1	250 19 28.0	0 37 46.3	7268159
25	16 50 54.63	21 57 52.5	7954662	22 31.1	250 24 12.7	0 37 40.5	7267909
26	16 51 50.65	21 59 27.8	7950513	22 28.1	250 28 57.4	0 37 34.8	7267658
27	16 52 46.56	22 1 1.5	7946215	22 25.1	250 33 42.2	0 37 29.1	7267407
28	16 53 42.33	22 2 33.8	7941768	22 22.1	250 38 27.0	0 37 23.4	7267156
29	16 54 37.96	22 4 4.6	7937174	22 19.1	250 43 11.8	0 37 17.6	7266905
30	16 55 33.44	22 5 33.9	7932431	22 16.0	250 47 56.6	0 37 11.9	7266653
31	16 56 28.77	22 7 1.7	7927540	22 13.0	250 52 41.5	0 37 6.1	7266401
32	16 57 23.94	22 8 27.9	7922502	22 10.0	250 57 26.5	0 37 0.4	7266148

MEAN TIME.

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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h</div> <div>m</div> <div>s</div> </div> <div> <div>°</div> <div>'</div> <div>"</div> </div> <div>°</div> <div>h</div> <div>m</div> <div>°</div> <div>'</div> <div>"</div> <div>°</div> </div>							
Jan. 1	13 8 10.43	4 37 29.4	.9859875	18 23.7	191 39 0.1	2 26 36.5	.9827735
2	13 8 20.75	4 38 15.4	.9852464	18 19.9	191 40 59.1	2 26 37.5	.9827866
3	13 8 30.70	4 38 59.1	.9845026	18 16.1	191 42 58.0	2 26 38.5	.9827997
4	13 8 40.28	4 39 40.4	.9837563	18 12.4	191 44 57.0	2 26 39.5	.9828128
5	13 8 49.49	4 40 19.3	.9830077	18 8.6	191 46 55.9	2 26 40.4	.9828260
6	13 8 58.33	4 40 55.9	.9822569	18 4.8	191 48 54.8	2 26 41.4	.9828391
7	13 9 6.79	4 41 30.0	.9815044	18 1.0	191 50 53.8	2 26 42.3	.9828522
8	13 9 14.87	4 42 1.8	.9807503	17 57.2	191 52 52.7	2 26 43.3	.9828653
9	13 9 22.57	4 42 31.1	.9799947	17 53.4	191 54 51.6	2 26 44.2	.9828784
10	13 9 29.88	4 42 58.0	.9792381	17 49.6	191 56 50.5	2 26 45.2	.9828915
11	13 9 36.81	4 43 22.5	.9784806	17 45.7	191 58 49.4	2 26 46.1	.9829046
12	13 9 43.35	4 43 44.5	.9777225	17 41.9	192 0 48.3	2 26 47.1	.9829177
13	13 9 49.50	4 44 4.1	.9769640	17 38.1	192 2 47.1	2 26 48.0	.9829308
14	13 9 55.25	4 44 21.3	.9762053	17 34.2	192 4 46.0	2 26 49.0	.9829439
15	13 10 0.61	4 44 36.0	.9754467	17 30.4	192 6 44.9	2 26 49.9	.9829570
16	13 10 5.58	4 44 48.3	.9746883	17 26.5	192 8 43.7	2 26 50.8	.9829701
17	13 10 10.16	4 44 58.2	.9739305	17 22.7	192 10 42.5	2 26 51.8	.9829832
18	13 10 14.34	4 45 5.6	.9731735	17 18.8	192 12 41.4	2 26 52.7	.9829963
19	13 10 18.13	4 45 10.5	.9724174	17 14.9	192 14 40.2	2 26 53.6	.9830094
20	13 10 21.52	4 45 13.1	.9716626	17 11.0	192 16 39.0	2 26 54.5	.9830225
21	13 10 24.52	4 45 13.1	.9709093	17 7.2	192 18 37.8	2 26 55.5	.9830356
22	13 10 27.12	4 45 10.8	.9701576	17 3.3	192 20 36.6	2 26 56.4	.9830487
23	13 10 29.32	4 45 6.0	.9694080	16 59.4	192 22 35.4	2 26 57.3	.9830618
24	13 10 31.13	4 44 58.8	.9686605	16 55.5	192 24 34.2	2 26 58.2	.9830748
25	13 10 32.54	4 44 49.1	.9679154	16 51.6	192 26 32.9	2 26 59.1	.9830879
26	13 10 33.56	4 44 37.1	.9671730	16 47.6	192 28 31.7	2 27 0.0	.9831010
27	13 10 34.17	4 44 22.7	.9664335	16 43.7	192 30 30.5	2 27 0.9	.9831141
28	13 10 34.39	4 44 5.8	.9656971	16 39.8	192 32 29.2	2 27 1.8	.9831271
29	13 10 34.20	4 43 46.6	.9649641	16 35.8	192 34 27.9	2 27 2.7	.9831402
30	13 10 33.62	4 43 25.0	.9642348	16 31.9	192 36 26.7	2 27 3.6	.9831533
31	13 10 32.65	4 43 1.0	.9635094	16 27.9	192 38 25.4	2 27 4.5	.9831664
Feb. 1	13 10 31.28	4 42 34.7	.9627881	16 24.0	192 40 24.1	2 27 5.3	.9831794
2	13 10 29.51	4 42 6.0	.9620713	16 20.0	192 42 22.8	2 27 6.2	.9831925
3	13 10 27.35	4 41 34.9	.9613592	16 16.0	192 44 21.5	2 27 7.1	.9832056
4	13 10 24.79	4 41 1.5	.9606521	16 12.1	192 46 20.2	2 27 8.0	.9832186
5	13 10 21.83	4 40 25.9	.9599503	16 8.1	192 48 18.9	2 27 8.8	.9832317
6	13 10 18.48	4 39 47.9	.9592540	16 4.1	192 50 17.5	2 27 9.7	.9832447
7	13 10 14.74	4 39 7.6	.9585636	16 0.1	192 52 16.2	2 27 10.6	.9832578
8	13 10 10.61	4 38 25.1	.9578793	15 56.1	192 54 14.9	2 27 11.4	.9832708
9	13 10 6.10	4 37 40.3	.9572013	15 52.1	192 56 13.5	2 27 12.3	.9832839
10	13 10 1.20	4 36 53.3	.9565302	15 48.0	192 58 12.1	2 27 13.2	.9832970
11	13 9 55.93	4 36 4.1	.9558660	15 44.0	193 0 10.7	2 27 14.0	.9833100

MEAN TIME.

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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h</div> <div>m</div> <div>s</div> </div> <div> <div>°</div> <div>'</div> <div>"</div> </div> <div>°</div> <div>h</div> <div>m</div> <div>°</div> <div>'</div> <div>"</div> <div>°</div> </div>							
Feb. 11	13 9 55.93	4 36 4.1	.9558660	15 44.0	193 0 10.7	2 27 14.0	.9833100
12	13 9 50.28	4 35 12.7	.9552090	15 40.0	193 2 9.4	2 27 14.9	.9833231
13	13 9 44.25	4 34 19.1	.9545594	15 36.0	193 4 8.0	2 27 15.7	.9833361
14	13 9 37.86	4 33 23.4	.9539176	15 31.9	193 6 6.5	2 27 16.6	.9833492
15	13 9 31.11	4 32 25.6	.9532837	15 27.9	193 8 5.1	2 27 17.4	.9833622
16	13 9 23.99	4 31 25.8	.9526580	15 23.8	193 10 3.7	2 27 18.2	.9833753
17	13 9 16.52	4 30 23.9	.9520408	15 19.7	193 12 2.3	2 27 19.1	.9833883
18	13 9 8.70	4 29 20.1	.9514323	15 15.7	193 14 0.8	2 27 19.9	.9834014
19	13 9 0.52	4 28 14.3	.9508327	15 11.6	193 15 59.4	2 27 20.7	.9834144
20	13 8 52.01	4 27 6.6	.9502423	15 7.5	193 17 58.0	2 27 21.6	.9834274
21	13 8 43.15	4 25 57.0	.9496613	15 3.4	193 19 56.5	2 27 22.4	.9834405
22	13 8 33.96	4 24 45.5	.9490900	14 59.4	193 21 55.0	2 27 23.2	.9834535
23	13 8 24.44	4 23 32.1	.9485285	14 55.3	193 23 53.5	2 27 24.0	.9834665
24	13 8 14.59	4 22 16.9	.9479772	14 51.2	193 25 52.1	2 27 24.8	.9834795
25	13 8 4.42	4 21 0.0	.9474361	14 47.1	193 27 50.6	2 27 25.6	.9834925
26	13 7 53.93	4 19 41.3	.9469055	14 43.0	193 29 49.1	2 27 26.4	.9835056
27	13 7 43.13	4 18 21.0	.9463857	14 38.9	193 31 47.6	2 27 27.3	.9835186
28	13 7 32.02	4 16 59.0	.9458768	14 34.7	193 33 46.0	2 27 28.1	.9835316
29	13 7 20.61	4 15 35.4	.9453792	14 30.6	193 35 44.5	2 27 28.9	.9835446
Mar. 1	13 7 8.91	4 14 10.1	.9448929	14 26.5	193 37 43.0	2 27 29.7	.9835576
2	13 6 56.91	4 12 43.3	.9444184	14 22.4	193 39 41.4	2 27 30.5	.9835707
3	13 6 44.64	4 11 15.1	.9439557	14 18.2	193 41 39.9	2 27 31.2	.9835837
4	13 6 32.08	4 9 45.3	.9435052	14 14.1	193 43 38.3	2 27 32.0	.9835967
5	13 6 19.26	4 8 14.2	.9430671	14 9.9	193 45 36.8	2 27 32.8	.9836097
6	13 6 6.17	4 6 41.7	.9426416	14 5.8	193 47 35.2	2 27 33.6	.9836227
7	13 5 52.83	4 5 7.9	.9422288	14 1.6	193 49 33.6	2 27 34.4	.9836357
8	13 5 39.24	4 3 32.8	.9418290	13 57.5	193 51 32.0	2 27 35.2	.9836487
9	13 5 25.41	4 1 56.5	.9414423	13 53.3	193 53 30.4	2 27 35.9	.9836616
10	13 5 11.35	4 0 19.1	.9410689	13 49.1	193 55 28.8	2 27 36.7	.9836746
11	13 4 57.06	3 58 40.5	.9407091	13 45.0	193 57 27.2	2 27 37.5	.9836876
12	13 4 42.55	3 57 0.9	.9403629	13 40.8	193 59 25.6	2 27 38.2	.9837005
13	13 4 27.84	3 55 20.3	.9400306	13 36.6	194 1 23.9	2 27 39.0	.9837135
14	13 4 12.92	3 53 38.7	.9397121	13 32.4	194 3 22.3	2 27 39.8	.9837264
15	13 3 57.81	3 51 56.3	.9394078	13 28.3	194 5 20.6	2 27 40.5	.9837394
16	13 3 42.52	3 50 13.0	.9391177	13 24.1	194 7 19.0	2 27 41.3	.9837523
17	13 3 27.05	3 48 29.0	.9388419	13 19.9	194 9 17.3	2 27 42.0	.9837653
18	13 3 11.42	3 46 44.3	.9385805	13 15.7	194 11 15.7	2 27 42.8	.9837782
19	13 2 55.63	3 44 58.9	.9383337	13 11.5	194 13 14.0	2 27 43.5	.9837912
20	13 2 39.70	3 43 12.9	.9381015	13 7.3	194 15 12.3	2 27 44.3	.9838041
21	13 2 23.62	3 41 26.4	.9378840	13 3.1	194 17 10.6	2 27 45.0	.9838170
22	13 2 7.41	3 39 39.3	.9376814	12 58.9	194 19 8.9	2 27 45.7	.9838300
23	13 1 51.08	3 37 51.7	.9374936	12 54.7	194 21 7.2	2 27 46.5	.9838429

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>° ' "</div> </div> <div> <div>South.</div> <div>°</div> </div> <div> <div>h m</div> <div>° ' "</div> </div> <div> <div>North.</div> <div>°</div> </div> </div>							
Mar. 23	13 1 51.08	3 37 51.7	9374936	12 54.7	194 21 7.2	2 27 46.5	9838429
24	13 1 34.64	3 36 3.8	9373208	12 50.5	194 23 5.5	2 27 47.2	9838558
25	13 1 18.08	3 34 15.5	9371631	12 46.3	194 25 3.8	2 27 47.9	9838687
26	13 1 1.43	3 32 26.9	9370205	12 42.1	194 27 2.1	2 27 48.7	9838816
27	13 0 44.69	3 30 38.1	9368930	12 37.9	194 29 0.4	2 27 49.4	9838946
28	13 0 27.87	3 28 49.1	9367808	12 33.7	194 30 58.6	2 27 50.1	9839075
29	13 0 10.98	3 27 0.1	9366838	12 29.4	194 32 56.9	2 27 50.8	9839204
30	12 59 54.02	3 25 10.9	9366022	12 25.2	194 34 55.2	2 27 51.5	9839333
31	12 59 37.00	3 23 21.8	9365360	12 21.0	194 36 53.4	2 27 52.2	9839462
Apr. 1	12 59 19.94	3 21 32.8	9364853	12 16.8	194 38 51.6	2 27 52.9	9839591
2	12 59 2.85	3 19 43.9	9364500	12 12.6	194 40 49.9	2 27 53.6	9839720
3	12 58 45.72	3 17 55.2	9364303	12 8.4	194 42 48.1	2 27 54.3	9839849
4	12 58 28.58	3 16 6.7	9364261	12 4.1	194 44 46.3	2 27 55.0	9839978
5	12 58 11.43	3 14 18.5	9364373	11 59.9	194 46 44.5	2 27 55.7	9840107
6	12 57 54.29	3 12 30.6	9364641	11 55.7	194 48 42.7	2 27 56.4	9840235
7	12 57 37.15	3 10 43.2	9365064	11 51.5	194 50 40.9	2 27 57.1	9840364
8	12 57 20.04	3 8 56.3	9365642	11 47.3	194 52 39.1	2 27 57.8	9840493
9	12 57 2.96	3 7 9.8	9366375	11 43.0	194 54 37.3	2 27 58.5	9840622
10	12 56 45.93	3 5 24.0	9367262	11 38.8	194 56 35.5	2 27 59.2	9840751
11	12 56 28.94	3 3 38.8	9368302	11 34.6	194 58 33.7	2 27 59.9	9840880
12	12 56 12.02	3 1 54.4	9369494	11 30.4	195 0 31.8	2 28 0.5	9841008
13	12 55 55.17	3 0 10.7	9370838	11 26.2	195 2 30.0	2 28 1.2	9841137
14	12 55 38.39	2 58 27.9	9372333	11 22.0	195 4 28.2	2 28 1.9	9841266
15	12 55 21.70	2 56 45.9	9373978	11 17.8	195 6 26.3	2 28 2.5	9841395
16	12 55 5.11	2 55 4.9	9375771	11 13.6	195 8 24.5	2 28 3.2	9841523
17	12 54 48.62	2 53 24.8	9377711	11 9.4	195 10 22.6	2 28 3.9	9841652
18	12 54 32.25	2 51 45.7	9379798	11 5.2	195 12 20.7	2 28 4.5	9841780
19	12 54 15.99	2 50 7.8	9382030	11 1.0	195 14 18.9	2 28 5.2	9841909
20	12 53 59.87	2 48 31.0	9384406	10 56.8	195 16 17.0	2 28 5.8	9842038
21	12 53 43.88	2 46 55.3	9386925	10 52.6	195 18 15.1	2 28 6.5	9842166
22	12 53 28.04	2 45 20.9	9389586	10 48.4	195 20 13.2	2 28 7.1	9842295
23	12 53 12.34	2 43 47.7	9392387	10 44.2	195 22 11.3	2 28 7.7	9842424
24	12 52 56.80	2 42 15.9	9395328	10 40.0	195 24 9.4	2 28 8.4	9842552
25	12 52 41.43	2 40 45.5	9398406	10 35.8	195 26 7.5	2 28 9.0	9842681
26	12 52 26.24	2 39 16.4	9401621	10 31.7	195 28 5.6	2 28 9.7	9842809
27	12 52 11.22	2 37 48.8	9404971	10 27.5	195 30 3.7	2 28 10.3	9842937
28	12 51 56.39	2 36 22.7	9408454	10 23.3	195 32 1.8	2 28 10.9	9843066
29	12 51 41.76	2 34 58.1	9412070	10 19.1	195 33 59.8	2 28 11.5	9843194
30	12 51 27.34	2 33 35.2	9415817	10 15.0	195 35 57.9	2 28 12.1	9843323
May 1	12 51 13.13	2 32 13.8	9419692	10 10.8	195 37 56.0	2 28 12.8	9843451
2	12 50 59.13	2 30 54.1	9423695	10 6.6	195 39 54.0	2 28 13.4	9843579
3	12 50 45.36	2 29 36.1	9427823	10 2.5	195 41 52.1	2 28 14.0	9843708

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
May	<i>h m s</i>	<i>South.</i> ° ' "	°	<i>h m</i>	<i>° ' "</i>	<i>North.</i> ° ' "	°
	12 50 45.36	2 29 36.1	9427823	10 2.5	195 41 52.1	2 28 14.0	9843708
	4 12 50 31.82	2 28 19.8	9432076	9 58.3	195 43 50.1	2 28 14.6	9843836
	5 12 50 18.53	2 27 5.4	9436450	9 54.2	195 45 48.1	2 28 15.2	9843964
	6 12 50 5.48	2 25 52.7	9440945	9 50.0	195 47 46.2	2 28 15.8	9844093
	7 12 49 52.68	2 24 41.9	9445558	9 45.9	195 49 44.2	2 28 16.4	9844221
	8 12 49 40.15	2 23 33.0	9450286	9 41.7	195 51 42.2	2 28 17.0	9844349
	9 12 49 27.88	2 22 26.1	9455128	9 37.6	195 53 40.2	2 28 17.6	9844477
	10 12 49 15.88	2 21 21.1	9460081	9 33.5	195 55 38.2	2 28 18.2	9844605
	11 12 49 4.16	2 20 18.1	9465142	9 29.3	195 57 36.2	2 28 18.8	9844733
	12 12 48 52.73	2 19 17.2	9470310	9 25.2	195 59 34.2	2 28 19.4	9844861
	13 12 48 41.58	2 18 18.3	9475582	9 21.1	196 1 32.2	2 28 20.0	9844990
	14 12 48 30.72	2 17 21.5	9480956	9 17.0	196 3 30.2	2 28 20.5	9845118
	15 12 48 20.16	2 16 26.9	9486429	9 12.9	196 5 28.2	2 28 21.1	9845246
	16 12 48 9.90	2 15 34.3	9491998	9 8.8	196 7 26.2	2 28 21.7	9845374
	17 12 47 59.95	2 14 43.9	9497662	9 4.7	196 9 24.1	2 28 22.3	9845502
	18 12 47 50.31	2 13 55.6	9503419	9 0.6	196 11 22.1	2 28 22.8	9845630
	19 12 47 40.99	2 13 9.5	9509265	8 56.5	196 13 20.0	2 28 23.4	9845758
	20 12 47 31.98	2 12 25.6	9515200	8 52.4	196 15 18.0	2 28 24.0	9845886
	21 12 47 23.30	2 11 44.0	9521220	8 48.4	196 17 15.9	2 28 24.5	9846014
	22 12 47 14.94	2 11 4.5	9527323	8 44.3	196 19 13.9	2 28 25.1	9846142
	23 12 47 6.90	2 10 27.3	9533508	8 40.2	196 21 11.8	2 28 25.6	9846270
	24 12 46 59.20	2 9 52.4	9539771	8 36.2	196 23 9.7	2 28 26.2	9846398
	25 12 46 51.83	2 9 19.8	9546111	8 32.1	196 25 7.6	2 28 26.7	9846526
	26 12 46 44.79	2 8 49.4	9552526	8 28.1	196 27 5.6	2 28 27.3	9846654
	27 12 46 38.09	2 8 21.4	9559013	8 24.0	196 29 3.5	2 28 27.8	9846781
	28 12 46 31.73	2 7 55.7	9565570	8 20.0	196 31 1.4	2 28 28.4	9846909
	29 12 46 25.72	2 7 32.4	9572104	8 16.0	196 32 59.3	2 28 28.9	9847037
	30 12 46 20.06	2 7 11.4	9578883	8 12.0	196 34 57.2	2 28 29.4	9847165
	31 12 46 14.75	2 6 52.7	9585636	8 7.9	196 36 55.0	2 28 30.0	9847293
June 1	12 46 9.80	2 6 36.5	9592448	8 3.9	196 38 52.9	2 28 30.5	9847420
2	12 46 5.20	2 6 22.6	9599319	7 59.9	196 40 50.8	2 28 31.0	9847548
3	12 46 0.96	2 6 11.1	9606246	7 55.9	196 42 48.7	2 28 31.5	9847676
4	12 45 57.09	2 6 2.0	9613225	7 51.9	196 44 46.5	2 28 32.1	9847803
5	12 45 53.57	2 5 55.3	9620255	7 47.9	196 46 44.4	2 28 32.6	9847931
6	12 45 50.43	2 5 51.0	9627333	7 44.0	196 48 42.2	2 28 33.1	9848059
7	12 45 47.64	2 5 49.0	9634456	7 40.0	196 50 40.1	2 28 33.6	9848186
8	12 45 45.23	2 5 49.6	9641621	7 36.0	196 52 37.9	2 28 34.1	9848314
9	12 45 43.19	2 5 52.5	9648826	7 32.1	196 54 35.7	2 28 34.6	9848442
10	12 45 41.51	2 5 57.9	9656070	7 28.1	196 56 33.6	2 28 35.1	9848569
11	12 45 40.20	2 6 5.7	9663348	7 24.1	196 58 31.4	2 28 35.6	9848697
12	12 45 39.26	2 6 15.8	9670659	7 20.2	197 0 29.2	2 28 36.1	9848825
13	12 45 38.69	2 6 28.4	9678002	7 16.2	197 2 27.0	2 28 36.6	9848952

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<div>h m s</div>	<div>South. ° ' "</div>	<div>°</div>	<div>h m</div>	<div>° ' "</div>	<div>North. ° ' "</div>	<div>°</div>
June 13	12 45 38.69	2 6 28.4	.9678002	7 16.2	197 2 27.0	2 28 36.6	.9848952
14	12 45 38.49	2 6 43.4	.9685372	7 12.3	197 4 24.8	2 28 37.1	.9849080
15	12 45 38.66	2 7 0.8	.9692769	7 8.4	197 6 22.6	2 28 37.6	.9849208
16	12 45 39.20	2 7 20.5	.9700189	7 4.5	197 8 20.4	2 28 38.0	.9849335
17	12 45 40.10	2 7 42.6	.9707632	7 0.6	197 10 18.2	2 28 38.5	.9849463
18	12 45 41.37	2 8 7.1	.9715093	6 56.7	197 12 15.9	2 28 39.0	.9849590
19	12 45 43.02	2 8 33.9	.9722573	6 52.8	197 14 13.7	2 28 39.5	.9849717
20	12 45 45.02	2 9 3.0	.9730067	6 48.9	197 16 11.5	2 28 39.9	.9849845
21	12 45 47.39	2 9 34.5	.9737574	6 45.0	197 18 9.2	2 28 40.4	.9849972
22	12 45 50.12	2 10 8.3	.9745092	6 41.1	197 20 7.0	2 28 40.9	.9850100
23	12 45 53.22	2 10 44.4	.9752619	6 37.2	197 22 4.7	2 28 41.3	.9850227
24	12 45 56.69	2 11 22.8	.9760154	6 33.3	197 24 2.4	2 28 41.8	.9850355
25	12 46 0.52	2 12 3.5	.9767694	6 29.5	197 26 0.1	2 28 42.2	.9850482
26	12 46 4.71	2 12 46.5	.9775237	6 25.6	197 27 57.9	2 28 42.7	.9850609
27	12 46 9.26	2 13 31.8	.9782783	6 21.7	197 29 55.6	2 28 43.1	.9850737
28	12 46 14.18	2 14 19.3	.9790328	6 17.9	197 31 53.3	2 28 43.6	.9850864
29	12 46 19.46	2 15 9.1	.9797871	6 14.0	197 33 51.0	2 28 44.0	.9850991
30	12 46 25.09	2 16 1.2	.9805410	6 10.2	197 35 48.6	2 28 44.5	.9851118
July 1	12 46 31.09	2 16 55.5	.9812941	6 6.4	197 37 46.3	2 28 44.9	.9851245
2	12 46 37.45	2 17 52.1	.9820464	6 2.6	197 39 44.0	2 28 45.4	.9851373
3	12 46 44.16	2 18 50.9	.9827975	5 58.7	197 41 41.7	2 28 45.8	.9851500
4	12 46 51.23	2 19 51.9	.9835473	5 54.9	197 43 39.3	2 28 46.2	.9851627
5	12 46 58.65	2 20 55.0	.9842955	5 51.1	197 45 37.0	2 28 46.6	.9851754
6	12 47 6.42	2 22 0.3	.9850421	5 47.3	197 47 34.6	2 28 47.1	.9851881
7	12 47 14.54	2 23 7.8	.9857867	5 43.5	197 49 32.3	2 28 47.5	.9852008
8	12 47 23.01	2 24 17.4	.9865293	5 39.7	197 51 29.9	2 28 47.9	.9852135
9	12 47 31.82	2 25 29.1	.9872696	5 35.9	197 53 27.5	2 28 48.3	.9852262
10	12 47 40.97	2 26 42.9	.9880074	5 32.2	197 55 25.1	2 28 48.7	.9852389
11	12 47 50.47	2 27 58.7	.9887426	5 28.4	197 57 22.7	2 28 49.1	.9852516
12	12 48 0.30	2 29 16.6	.9894750	5 24.6	197 59 20.3	2 28 49.5	.9852643
13	12 48 10.47	2 30 36.5	.9902044	5 20.9	198 1 17.9	2 28 49.9	.9852770
14	12 48 20.97	2 31 58.3	.9909307	5 17.1	198 3 15.5	2 28 50.3	.9852897
15	12 48 31.81	2 33 22.1	.9916536	5 13.3	198 5 13.1	2 28 50.7	.9853024
16	12 48 42.97	2 34 47.9	.9923731	5 9.6	198 7 10.6	2 28 51.1	.9853150
17	12 48 54.46	2 36 15.7	.9930889	5 5.9	198 9 8.2	2 28 51.5	.9853277
18	12 49 6.26	2 37 45.3	.9938011	5 2.1	198 11 5.7	2 28 51.9	.9853404
19	12 49 18.39	2 39 16.9	.9945094	4 58.4	198 13 3.3	2 28 52.3	.9853531
20	12 49 30.83	2 40 50.3	.9952136	4 54.7	198 15 0.8	2 28 52.7	.9853658
21	12 49 43.58	2 42 25.6	.9959138	4 51.0	198 16 58.3	2 28 53.1	.9853785
22	12 49 56.64	2 44 2.8	.9966096	4 47.2	198 18 55.8	2 28 53.4	.9853912
23	12 50 10.01	2 45 41.7	.9973011	4 43.5	198 20 53.3	2 28 53.8	.9854038
24	12 50 23.68	2 47 22.5	.9979880	4 39.8	198 22 50.8	2 28 54.2	.9854165

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>h m s</div> <div>° ' "</div> <div>°</div> </div>							
July 24	12 50 23.68	2 47 22.5	.9979880	4 39.8	198 22 50.8	2 28 54.2	.9854165
25	12 50 37.66	2 49 5.0	.9986702	4 36.1	198 24 48.3	2 28 54.6	.9854292
26	12 50 51.94	2 50 49.3	.9993476	4 32.4	198 26 45.8	2 28 54.9	.9854418
I							
27	12 51 6.52	2 52 35.3	.0000201	4 28.8	198 28 43.3	2 28 55.3	.9854545
28	12 51 21.40	2 54 23.1	.0006874	4 25.1	198 30 40.8	2 28 55.7	.9854671
29	12 51 36.57	2 56 12.5	.0013495	4 21.4	198 32 38.2	2 28 56.0	.9854798
30	12 51 52.03	2 58 3.6	.0020062	4 17.7	198 34 35.7	2 28 56.4	.9854924
31	12 52 7.79	2 59 56.3	.0026573	4 14.1	198 36 33.1	2 28 56.7	.9855051
Aug. 1	12 52 23.83	3 1 50.7	.0033027	4 10.4	198 38 30.6	2 28 57.1	.9855177
2	12 52 40.15	3 3 46.7	.0039423	4 6.7	198 40 28.0	2 28 57.4	.9855303
3	12 52 56.75	3 5 44.3	.0045759	4 3.1	198 42 25.4	2 28 57.8	.9855430
4	12 53 13.62	3 7 43.4	.0052034	3 59.4	198 44 22.8	2 28 58.1	.9855556
5	12 53 30.76	3 9 44.0	.0058247	3 55.8	198 46 20.2	2 28 58.4	.9855683
6	12 53 48.18	3 11 46.1	.0064397	3 52.1	198 48 17.6	2 28 58.8	.9855809
7	12 54 5.86	3 13 49.7	.0070482	3 48.5	198 50 15.0	2 28 59.1	.9855935
8	12 54 23.80	3 15 54.8	.0076501	3 44.8	198 52 12.4	2 28 59.4	.9856061
9	12 54 42.00	3 18 1.2	.0082454	3 41.2	198 54 9.7	2 28 59.8	.9856187
10	12 55 0.46	3 20 9.1	.0088338	3 37.6	198 56 7.1	2 29 0.1	.9856314
11	12 55 19.16	3 22 18.3	.0094154	3 34.0	198 58 4.4	2 29 0.4	.9856440
12	12 55 38.12	3 24 28.8	.0099900	3 30.3	199 0 1.8	2 29 0.7	.9856566
13	12 55 57.31	3 26 40.7	.0105575	3 26.7	199 1 59.1	2 29 1.0	.9856692
14	12 56 16.74	3 28 53.8	.0111178	3 23.1	199 3 56.4	2 29 1.3	.9856818
15	12 56 36.42	3 31 8.3	.0116709	3 19.5	199 5 53.7	2 29 1.7	.9856944
16	12 56 56.32	3 33 23.9	.0122167	3 15.9	199 7 51.0	2 29 2.0	.9857070
17	12 57 16.45	3 35 40.8	.0127550	3 12.3	199 9 48.3	2 29 2.3	.9857196
18	12 57 36.81	3 37 58.9	.0132859	3 8.7	199 11 45.6	2 29 2.6	.9857321
19	12 57 57.39	3 40 18.1	.0138093	3 5.1	199 13 42.9	2 29 2.9	.9857447
20	12 58 18.19	3 42 38.5	.0143251	3 1.6	199 15 40.2	2 29 3.1	.9857573
21	12 58 39.21	3 44 59.9	.0148332	2 58.0	199 17 37.4	2 29 3.4	.9857699
22	12 59 0.45	3 47 22.5	.0153335	2 54.4	199 19 34.7	2 29 3.7	.9857825
23	12 59 21.89	3 49 46.2	.0158259	2 50.8	199 21 31.9	2 29 4.0	.9857951
24	12 59 43.54	3 52 10.9	.0163103	2 47.2	199 23 29.2	2 29 4.3	.9858076
25	13 0 5.40	3 54 36.7	.0167866	2 43.7	199 25 26.4	2 29 4.6	.9858202
26	13 0 27.46	3 57 3.5	.0172547	2 40.1	199 27 23.6	2 29 4.9	.9858328
27	13 0 49.72	3 59 31.3	.0177146	2 36.5	199 29 20.9	2 29 5.1	.9858453
28	13 1 12.18	4 2 0.0	.0181661	2 33.0	199 31 18.1	2 29 5.4	.9858578
29	13 1 34.82	4 4 29.7	.0186091	2 29.4	199 33 15.3	2 29 5.7	.9858704
30	13 1 57.65	4 7 0.2	.0190437	2 25.9	199 35 12.5	2 29 5.9	.9858829
31	13 2 20.67	4 9 31.7	.0194696	2 22.3	199 37 9.7	2 29 6.2	.9858955
Sept. 1	13 2 43.86	4 12 4.0	.0198869	2 18.8	199 39 6.8	2 29 6.4	.9859080
2	13 3 7.23	4 14 37.0	.0202954	2 15.2	199 41 4.0	2 29 6.7	.9859206
3	13 3 30.77	4 17 10.9	.0206952	2 11.7	199 43 1.2	2 29 7.0	.9859331

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.			
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.	
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.	
Sept. 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 Oct. 1 2 3 4 5 6 7 8 9 10 11 12 13 14	h m s		South. ° ' "	I	h m		North. ° ' "	°
	13	3 30.77	4 17 10.9	.0206952	2 11.7	199 43 1.2	2 29 7.0	.9859331
	13	3 34.48	4 19 45.5	.0210860	2 8.2	199 44 58.3	2 29 7.2	.9859456
	13	4 18.36	4 22 20.8	.0214679	2 4.6	199 46 55.5	2 29 7.5	.9859582
	13	4 42.39	4 24 56.8	.0218408	2 1.1	199 48 52.6	2 29 7.7	.9859707
	13	5 6.58	4 27 33.5	.0222046	1 57.6	199 50 49.7	2 29 7.9	.9859832
	13	5 30.92	4 30 10.9	.0225593	1 54.0	199 52 46.8	2 29 8.2	.9859957
	13	5 55.41	4 32 48.9	.0229048	1 50.5	199 54 44.0	2 29 8.4	.9860083
	13	6 20.05	4 35 27.5	.0232411	1 47.0	199 56 41.1	2 29 8.7	.9860208
	13	6 44.83	4 38 6.7	.0235681	1 43.4	199 58 38.2	2 29 8.9	.9860333
	13	7 9.74	4 40 46.5	.0238858	1 39.9	200 0 35.3	2 29 9.1	.9860458
	13	7 34.79	4 43 26.7	.0241942	1 36.4	200 2 32.3	2 29 9.3	.9860583
	13	7 59.96	4 46 7.4	.0244932	1 32.9	200 4 29.4	2 29 9.6	.9860708
	13	8 25.26	4 48 48.6	.0247829	1 29.4	200 6 26.5	2 29 9.8	.9860833
	13	8 50.68	4 51 30.3	.0250631	1 25.9	200 8 23.6	2 29 10.0	.9860958
	13	9 16.22	4 54 12.3	.0253338	1 22.4	200 10 20.6	2 29 10.2	.9861082
	13	9 41.87	4 56 54.8	.0255950	1 18.9	200 12 17.7	2 29 10.4	.9861207
	13	10 7.64	4 59 37.7	.0258467	1 15.4	200 14 14.7	2 29 10.6	.9861332
	13	10 33.51	5 2 20.9	.0260889	1 11.9	200 16 11.8	2 29 10.8	.9861457
	13	10 59.49	5 5 4.4	.0263213	1 8.4	200 18 8.8	2 29 11.0	.9861581
	13	11 25.57	5 7 48.2	.0265441	1 4.9	200 20 5.8	2 29 11.2	.9861706
	13	11 51.75	5 10 32.3	.0267571	1 1.4	200 22 2.8	2 29 11.4	.9861831
	13	12 18.02	5 13 16.6	.0269602	0 57.9	200 23 59.8	2 29 11.6	.9861955
	13	12 44.39	5 16 1.2	.0271535	0 54.4	200 25 56.8	2 29 11.8	.9862080
	13	13 10.84	5 18 45.9	.0273370	0 50.9	200 27 53.8	2 29 12.0	.9862205
	13	13 37.38	5 21 30.8	.0275105	0 47.4	200 29 50.8	2 29 12.2	.9862329
	13	14 3.99	5 24 15.9	.0276740	0 43.9	200 31 47.8	2 29 12.4	.9862454
	13	14 30.68	5 27 1.1	.0278275	0 40.4	200 33 44.8	2 29 12.5	.9862578
	13	14 57.44	5 29 46.3	.0279709	0 36.9	200 35 41.7	2 29 12.7	.9862703
	13	15 24.26	5 32 31.6	.0281042	0 33.5	200 37 38.7	2 29 12.9	.9862827
13	15 51.15	5 35 17.0	.0282274	0 30.0	200 39 35.7	2 29 13.0	.9862952	
13	16 18.09	5 38 2.4	.0283404	0 26.5	200 41 32.6	2 29 13.2	.9863076	
13	16 45.09	5 40 47.8	.0284433	0 23.0	200 43 29.5	2 29 13.4	.9863200	
13	17 12.14	5 43 33.1	.0285360	0 19.5	200 45 26.5	2 29 13.5	.9863325	
13	17 39.23	5 46 18.4	.0286185	0 16.0	200 47 23.4	2 29 13.7	.9863449	
13	18 6.36	5 49 3.6	.0286908	0 12.6	200 49 20.3	2 29 13.9	.9863573	
13	18 33.53	5 51 48.6	.0287529	0 9.1	200 51 17.2	2 29 14.0	.9863697	
13	19 0.73	5 54 33.4	.0288048	0 5.6	200 53 14.1	2 29 14.2	.9863822	
13	19 27.95	5 57 18.1	.0288465	{ 0 2.1 }	200 55 11.0	2 29 14.3	.9863946	
13	19 55.20	6 0 2.5	.0288780	23 55.1	200 57 7.9	2 29 14.4	.9864070	
13	20 22.47	6 2 46.7	.0288993	23 51.7	200 59 4.8	2 29 14.6	.9864194	
13	20 49.76	6 5 30.6	.0289105	23 48.2	201 1 1.7	2 29 14.7	.9864318	
13	21 17.05	6 8 14.3	.0289115	23 44.7	201 2 58.6	2 29 14.9	.9864442	

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	I	h m	° ' "	North. ° ' "	°
Oct. 14	13 21 17.05	6 8 14.3	.0289115	23 44.7	201 2 58.6	2 29 14.9	.9864442
15	13 21 44.36	6 10 57.7	.0289023	23 41.2	201 4 55.5	2 29 15.0	.9864566
16	13 22 11.67	6 13 40.7	.0288829	23 37.7	201 6 52.4	2 29 15.1	.9864690
17	13 22 38.98	6 16 23.3	.0288533	23 34.3	201 8 49.2	2 29 15.2	.9864814
18	13 23 6.29	6 19 5.6	.0288134	23 30.8	201 10 46.1	2 29 15.4	.9864938
19	13 23 33.59	6 21 47.5	.0287633	23 27.3	201 12 42.9	2 29 15.5	.9865062
20	13 24 0.89	6 24 29.1	.0287030	23 23.8	201 14 39.8	2 29 15.6	.9865185
21	13 24 28.17	6 27 10.1	.0286324	23 20.4	201 16 36.6	2 29 15.7	.9865309
22	13 24 55.43	6 29 50.7	.0285516	23 16.9	201 18 33.4	2 29 15.8	.9865433
23	13 25 22.67	6 32 30.8	.0284605	23 13.4	201 20 30.3	2 29 15.9	.9865557
24	13 25 49.88	6 35 10.4	.0283591	23 9.9	201 22 27.1	2 29 16.0	.9865681
25	13 26 17.06	6 37 49.4	.0282475	23 6.4	201 24 23.9	2 29 16.2	.9865804
26	13 26 44.21	6 40 27.8	.0281255	23 2.9	201 26 20.7	2 29 16.3	.9865928
27	13 27 11.32	6 43 5.6	.0279933	22 59.5	201 28 17.5	2 29 16.4	.9866051
28	13 27 38.38	6 45 42.8	.0278509	22 56.0	201 30 14.3	2 29 16.4	.9866175
29	13 28 5.39	6 48 19.3	.0276981	22 52.5	201 32 11.1	2 29 16.5	.9866298
30	13 28 32.35	6 50 55.1	.0275352	22 49.0	201 34 7.9	2 29 16.6	.9866422
31	13 28 59.25	6 53 30.2	.0273620	22 45.5	201 36 4.7	2 29 16.7	.9866545
Nov. 1	13 29 26.09	6 56 4.6	.0271785	22 42.0	201 38 1.5	2 29 16.8	.9866669
2	13 29 52.86	6 58 38.2	.0269849	22 38.5	201 39 58.2	2 29 16.9	.9866792
3	13 30 19.55	7 1 11.0	.0267811	22 35.0	201 41 55.0	2 29 17.0	.9866916
4	13 30 46.17	7 3 43.0	.0265673	22 31.5	201 43 51.7	2 29 17.0	.9867039
5	13 31 12.71	7 6 14.2	.0263433	22 28.1	201 45 48.5	2 29 17.1	.9867162
6	13 31 39.16	7 8 44.5	.0261094	22 24.6	201 47 45.3	2 29 17.2	.9867285
7	13 32 5.52	7 11 14.0	.0258655	22 21.1	201 49 42.0	2 29 17.2	.9867408
8	13 32 31.79	7 13 42.5	.0256116	22 17.6	201 51 38.8	2 29 17.3	.9867532
9	13 32 57.96	7 16 10.1	.0253478	22 14.1	201 53 35.5	2 29 17.4	.9867655
10	13 33 24.02	7 18 36.7	.0250742	22 10.6	201 55 32.2	2 29 17.4	.9867778
11	13 33 49.98	7 21 2.4	.0247908	22 7.1	201 57 29.0	2 29 17.5	.9867901
12	13 34 15.83	7 23 27.0	.0244976	22 3.6	201 59 25.7	2 29 17.5	.9868024
13	13 34 41.56	7 25 50.6	.0241947	22 0.0	202 1 22.4	2 29 17.6	.9868147
14	13 35 7.17	7 28 13.2	.0238821	21 56.5	202 3 19.1	2 29 17.6	.9868270
15	13 35 32.65	7 30 34.6	.0235599	21 53.0	202 5 15.8	2 29 17.7	.9868393
16	13 35 58.01	7 32 55.0	.0232281	21 49.5	202 7 12.5	2 29 17.7	.9868516
17	13 36 23.24	7 35 14.2	.0228867	21 46.0	202 9 9.2	2 29 17.7	.9868639
18	13 36 48.34	7 37 32.3	.0225359	21 42.5	202 11 5.9	2 29 17.8	.9868762
19	13 37 13.29	7 39 49.3	.0221755	21 38.9	202 13 2.6	2 29 17.8	.9868885
20	13 37 38.10	7 42 5.1	.0218057	21 35.4	202 14 59.3	2 29 17.8	.9869008
21	13 38 2.76	7 44 19.7	.0214265	21 31.9	202 16 56.0	2 29 17.8	.9869130
22	13 38 27.27	7 46 33.0	.0210379	21 28.4	202 18 52.6	2 29 17.9	.9869253
23	13 38 51.62	7 48 45.1	.0206400	21 24.9	202 20 49.3	2 29 17.9	.9869376
24	13 39 15.80	7 50 55.9	.0202328	21 21.3	202 22 45.9	2 29 17.9	.9869499

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	l	h m	° ' "	North. ° ' "	o
Nov. 24	13 39 15.80	7 50 55.9	.0202328	21 21.3	202 22 45.9	2 29 17.9	.9869499
25	13 39 39.82	7 53 5.4	.0198163	21 17.8	202 24 42.6	2 29 17.9	.9869621
26	13 40 3.66	7 55 13.6	.0193907	21 14.2	202 26 39.2	2 29 17.9	.9869744
27	13 40 27.32	7 57 20.4	.0189561	21 10.7	202 28 35.9	2 29 17.9	.9869867
28	13 40 50.80	7 59 25.9	.0185124	21 7.2	202 30 32.5	2 29 17.9	.9869989
29	13 41 14.09	8 1 29.9	.0180598	21 3.6	202 32 29.1	2 29 17.9	.9870112
30	13 41 37.19	8 3 32.5	.0175984	21 0.1	202 34 25.8	2 29 17.9	.9870234
Dec. 1	13 42 0.09	8 5 33.7	.0171283	20 56.5	202 36 22.4	2 29 17.9	.9870357
2	13 42 22.79	8 7 33.3	.0166495	20 53.0	202 38 19.0	2 29 17.9	.9870479
3	13 42 45.28	8 9 31.5	.0161622	20 49.4	202 40 15.6	2 29 17.9	.9870602
4	13 43 7.56	8 11 28.2	.0156665	20 45.8	202 42 12.2	2 29 17.9	.9870724
5	13 43 29.63	8 13 23.4	.0151624	20 42.3	202 44 8.8	2 29 17.9	.9870846
6	13 43 51.48	8 15 17.0	.0146501	20 38.7	202 46 5.4	2 29 17.9	.9870968
7	13 44 13.10	8 17 9.0	.0141296	20 35.1	202 48 2.0	2 29 17.9	.9871090
8	13 44 34.49	8 18 59.4	.0136011	20 31.5	202 49 58.6	2 29 17.8	.9871213
9	13 44 55.65	8 20 48.2	.0130647	20 27.9	202 51 55.2	2 29 17.8	.9871335
10	13 45 16.58	8 22 35.4	.0125205	20 24.4	202 53 51.7	2 29 17.8	.9871457
11	13 45 37.26	8 24 20.9	.0119685	20 20.8	202 55 48.3	2 29 17.8	.9871579
12	13 45 57.70	8 26 4.8	.0114090	20 17.2	202 57 44.8	2 29 17.7	.9871701
13	13 46 17.89	8 27 47.0	.0108419	20 13.6	202 59 41.4	2 29 17.7	.9871823
14	13 46 37.83	8 29 27.6	.0102675	20 10.0	203 1 37.9	2 29 17.7	.9871945
15	13 46 57.51	8 31 6.4	.0096857	20 6.3	203 3 34.5	2 29 17.6	.9872067
16	13 47 16.93	8 32 43.5	.0090967	20 2.7	203 5 31.0	2 29 17.6	.9872189
17	13 47 36.08	8 34 18.8	.0085006	19 59.1	203 7 27.5	2 29 17.5	.9872311
18	13 47 54.97	8 35 52.4	.0078975	19 55.5	203 9 24.1	2 29 17.5	.9872433
19	13 48 13.58	8 37 24.1	.0072875	19 51.9	203 11 20.6	2 29 17.4	.9872555
20	13 48 31.92	8 38 54.0	.0066708	19 48.3	203 13 17.1	2 29 17.4	.9872676
21	13 48 49.97	8 40 22.1	.0060474	19 44.6	203 15 13.6	2 29 17.3	.9872798
22	13 49 7.74	8 41 48.3	.0054174	19 41.0	203 17 10.1	2 29 17.2	.9872920
23	13 49 25.21	8 43 12.7	.0047810	19 37.3	203 19 6.6	2 29 17.2	.9873042
24	13 49 42.39	8 44 35.2	.0041383	19 33.7	203 21 3.0	2 29 17.1	.9873163
25	13 49 59.27	8 45 55.7	.0034895	19 30.0	203 22 59.5	2 29 17.0	.9873285
26	13 50 15.84	8 47 14.4	.0028348	19 26.3	203 24 56.0	2 29 17.0	.9873406
27	13 50 32.10	8 48 31.1	.0021742	19 22.7	203 26 52.4	2 29 16.9	.9873528
28	13 50 48.05	8 49 45.8	.0015080	19 19.0	203 28 48.9	2 29 16.8	.9873649
29	13 51 3.69	8 50 58.6	.0008363	19 15.3	203 30 45.3	2 29 16.7	.9873771
30	13 51 19.00	8 52 9.4	.0001592	19 11.6	203 32 41.8	2 29 16.7	.9873892
31	13 51 33.99	8 53 18.2	.9994770	19 8.0	203 34 38.2	2 29 16.6	.9874013
32	13 51 48.65	8 54 25.0	.9987898	19 4.3	203 36 34.7	2 29 16.5	.9874135

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	<i>I</i>	<i>h m</i>	<i>° ' "</i>	<i>Nor</i> <i>° ' "</i>	<i>I</i>
Jan. 1	5 26 48.88	23 22 42.8	2584574	10 43.4	83 17 54.9	0 8 6.6	2803483
5	5 26 7.69	23 22 11.3	2590079	10 27.0	83 20 46.1	0 8 8.9	2803311
9	5 25 28.15	23 21 40.6	2596690	10 10.6	83 23 37.4	0 8 11.1	2803138
13	5 24 50.54	23 21 10.8	2604364	9 54.2	83 26 28.6	0 8 13.4	2802966
17	5 24 15.12	23 20 42.1	2613052	9 37.9	83 29 19.9	0 8 15.7	2802793
21	5 23 42.15	23 20 14.9	2622693	9 21.6	83 32 11.1	0 8 18.0	2802621
25	5 23 11.85	23 19 49.7	2633219	9 5.4	83 35 2.3	0 8 20.3	2802448
29	5 22 44.39	23 19 26.6	2644568	8 49.2	83 37 53.6	0 8 22.5	2802276
Feb. 2	5 22 19.97	23 19 5.7	2656677	8 33.1	83 40 44.8	0 8 24.8	2802104
6	5 21 58.76	23 18 47.4	2669475	8 17.0	83 43 36.0	0 8 27.1	2801931
10	5 21 40.93	23 18 32.0	2682888	8 1.0	83 46 27.2	0 8 29.4	2801759
14	5 21 26.60	23 18 19.4	2696829	7 45.1	83 49 18.3	0 8 31.7	2801587
18	5 21 15.87	23 18 10.0	2711217	7 29.2	83 52 9.5	0 8 33.9	2801414
22	5 21 8.77	23 18 4.0	2725968	7 13.3	83 55 0.6	0 8 36.2	2801242
26	5 21 5.34	23 18 1.4	2741008	6 57.5	83 57 51.8	0 8 38.5	2801069
Mar. 1	5 21 5.63	23 18 2.2	2756264	6 41.8	84 0 42.9	0 8 40.8	2800897
5	5 21 9.66	23 18 6.3	2771659	6 26.2	84 3 34.1	0 8 43.1	2800725
9	5 21 17.43	23 18 13.9	2787114	6 10.6	84 6 25.2	0 8 45.3	2800553
13	5 21 28.91	23 18 24.8	2802548	5 55.0	84 9 16.4	0 8 47.6	2800381
17	5 21 44.06	23 18 39.0	2817884	5 39.5	84 12 7.5	0 8 49.9	2800210
21	5 22 2.79	23 18 56.4	2833053	5 24.1	84 14 58.7	0 8 52.1	2800038
25	5 22 25.01	23 19 16.8	2847988	5 8.8	84 17 49.9	0 8 54.4	2799867
29	5 22 50.62	23 19 40.0	2862631	4 53.5	84 20 41.0	0 8 56.7	2799695
Apr. 2	5 23 19.55	23 20 5.9	2876922	4 38.3	84 23 32.2	0 8 58.9	2799524
6	5 23 51.71	23 20 34.3	2890799	4 23.1	84 26 23.5	0 9 1.2	2799353
10	5 24 26.96	23 21 5.0	2904201	4 7.9	84 29 14.7	0 9 3.5	2799181
14	5 25 5.16	23 21 37.6	2917073	3 52.8	84 32 6.0	0 9 5.8	2799010
18	5 25 46.14	23 22 12.0	2929368	3 37.8	84 34 57.4	0 9 8.0	2798838
22	5 26 29.75	23 22 48.0	2941043	3 22.8	84 37 48.7	0 9 10.3	2798667
26	5 27 15.83	23 23 25.1	2952064	3 7.8	84 40 40.1	0 9 12.6	2798495
30	5 28 4.24	23 24 3.3	2962388	2 52.9	84 43 31.5	0 9 14.9	2798324
May 4	5 28 54.83	23 24 42.2	2971982	2 38.0	84 46 23.0	0 9 17.2	2798152
8	5 29 47.41	23 25 21.6	2980813	2 23.2	84 49 14.4	0 9 19.4	2797980
12	5 30 41.81	23 26 1.3	2988840	2 8.4	84 52 6.0	0 9 21.7	2797809
16	5 31 37.83	23 26 41.1	2996041	1 53.6	84 54 57.5	0 9 24.0	2797638
20	5 32 35.29	23 27 20.5	3002401	1 38.8	84 57 49.1	0 9 26.2	2797467
24	5 33 34.00	23 27 59.6	3007902	1 24.0	85 0 40.7	0 9 28.5	2797296
28	5 34 33.81	23 28 38.2	3012529	1 9.3	85 3 32.3	0 9 30.8	2797124
June 1	5 35 34.53	23 29 15.9	3016265	0 54.6	85 6 24.0	0 9 33.0	2796953
5	5 36 35.97	23 29 52.6	3019093	0 39.8	85 9 15.6	0 9 35.3	2796782
9	5 37 37.93	23 30 28.2	3021005	0 25.1	85 12 7.3	0 9 37.6	2796610
13	5 38 40.21	23 31 2.8	3021997	0 10.5	85 14 59.1	0 9 39.8	2796439
17	5 39 42.63	23 31 35.9	3022069	23 52.1	85 17 50.9	0 9 42.1	2796268
21	5 40 45.01	23 32 7.4	3021226	23 37.4	85 20 42.6	0 9 44.4	2796097
25	5 41 47.15	23 32 37.6	3019472	23 22.7	85 23 34.4	0 9 46.6	2795927
29	5 42 48.90	23 33 6.0	3016804	23 8.0	85 26 26.2	0 9 48.9	2795756
July 3	5 43 50.06	23 33 32.9	3013229	22 53.3	85 29 18.0	0 9 51.2	2795585

MEAN TIME.

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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	° ' "	I	h m	° ' "	° ' "	I
July 3	5 43 50.06	23 33 32.9	3013220	22 53.3	85 29 18.0	0 9 51.2	2795585
7	5 44 50.42	23 33 58.3	3008758	22 38.5	85 32 9.8	0 9 53.4	2795414
11	5 45 49.79	23 34 21.9	3003405	22 23.8	85 35 1.6	0 9 55.7	2795243
15	5 46 48.00	23 34 43.9	2997188	22 9.0	85 37 53.4	0 9 58.0	2795072
19	5 47 44.86	23 35 4.3	2990131	21 54.2	85 40 45.2	0 10 0.2	2794901
23	5 48 40.22	23 35 23.2	2982256	21 39.4	85 43 37.0	0 10 2.5	2794730
27	5 49 33.92	23 35 40.4	2973583	21 24.6	85 46 28.8	0 10 4.8	2794559
31	5 50 25.76	23 35 56.2	2964136	21 9.7	85 49 20.6	0 10 7.0	2794389
Aug. 4	5 51 15.55	23 36 10.7	2953944	20 54.8	85 52 12.4	0 10 9.3	2794218
8	5 52 3.12	23 36 23.8	2943041	20 39.8	85 55 4.1	0 10 11.6	2794047
12	5 52 48.32	23 36 35.7	2931466	20 24.8	85 57 55.9	0 10 13.8	2793877
16	5 53 31.00	23 36 46.6	2919267	20 9.8	86 0 47.6	0 10 16.1	2793707
20	5 54 11.02	23 36 56.5	2906484	19 54.7	86 3 39.4	0 10 18.4	2793537
24	5 54 48.25	23 37 5.4	2893156	19 39.6	86 6 31.1	0 10 20.6	2793367
28	5 55 22.54	23 37 13.6	2879327	19 24.5	86 9 22.8	0 10 22.9	2793197
Sept. 1	5 55 53.74	23 37 21.2	2865049	19 9.2	86 12 14.5	0 10 25.2	2793027
5	5 56 21.73	23 37 28.0	2850381	18 54.0	86 15 6.3	0 10 27.4	2792857
9	5 56 46.40	23 37 34.4	2835390	18 38.6	86 17 58.0	0 10 29.7	2792687
13	5 57 7.66	23 37 40.5	2820134	18 23.2	86 20 49.7	0 10 32.0	2792516
17	5 57 25.44	23 37 46.2	2804673	18 7.8	86 23 41.4	0 10 34.2	2792346
21	5 57 39.67	23 37 51.4	2789073	17 52.3	86 26 33.1	0 10 36.5	2792176
25	5 57 50.29	23 37 56.4	2773399	17 36.7	86 29 24.9	0 10 38.8	2792006
29	5 57 57.23	23 38 1.4	2757720	17 21.1	86 32 16.6	0 10 41.0	2791836
Oct. 3	5 58 0.47	23 38 6.0	2742115	17 5.4	86 35 8.4	0 10 43.3	2791666
7	5 57 59.98	23 38 10.5	2726665	16 49.7	86 38 0.2	0 10 45.6	2791497
11	5 57 55.80	23 38 14.9	2711445	16 33.9	86 40 52.0	0 10 47.8	2791327
15	5 57 47.99	23 38 19.0	2696533	16 18.0	86 43 43.8	0 10 50.1	2791157
19	5 57 36.58	23 38 22.7	2682002	16 2.1	86 46 35.7	0 10 52.3	2790986
23	5 57 21.64	23 38 26.0	2667923	15 46.1	86 49 27.6	0 10 54.6	2790816
27	5 57 3.25	23 38 29.2	2654377	15 30.1	86 52 19.5	0 10 56.8	2790646
31	5 56 41.51	23 38 31.9	2641445	15 14.0	86 55 11.4	0 10 59.1	2790476
Nov. 4	5 56 16.56	23 38 33.9	2629206	14 57.8	86 58 3.4	0 11 1.3	2790306
8	5 55 48.59	23 38 35.3	2617735	14 41.6	87 0 55.5	0 11 3.6	2790137
12	5 55 17.81	23 38 36.1	2607096	14 25.4	87 3 47.6	0 11 5.9	2789967
16	5 54 44.42	23 38 36.1	2597348	14 9.1	87 6 39.7	0 11 8.1	2789798
20	5 54 8.61	23 38 35.0	2588549	13 52.8	87 9 31.9	0 11 10.4	2789628
24	5 53 30.62	23 38 32.8	2580760	13 36.4	87 12 24.0	0 11 12.7	2789458
28	5 52 50.71	23 38 29.5	2574035	13 20.0	87 15 16.3	0 11 14.9	2789289
Dec. 2	5 52 9.17	23 38 25.3	2568416	13 3.6	87 18 8.5	0 11 17.2	2789120
6	5 51 26.32	23 38 20.0	2563943	12 47.1	87 21 0.8	0 11 19.5	2788951
10	5 50 42.48	23 38 13.4	2560647	12 30.7	87 23 53.1	0 11 21.7	2788782
14	5 49 57.94	23 38 5.9	2558542	12 14.3	87 26 45.4	0 11 24.0	2788612
18	5 49 13.01	23 37 57.3	2557639	11 57.7	87 29 37.8	0 11 26.2	2788443
22	5 48 28.01	23 37 47.4	2557945	11 41.2	87 32 30.1	0 11 28.5	2788274
26	5 47 43.26	23 37 36.7	2559469	11 24.8	87 35 22.5	0 11 30.7	2788105
30	5 46 59.10	23 37 25.3	2562200	11 8.4	87 38 14.8	0 11 33.0	2787935
34	5 46 15.87	23 37 13.3	2566116	10 51.9	87 41 7.2	0 11 35.2	2787766

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i>	<i>° ' "</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i>	<i>° ' "</i>
Jan. 1	0 14 46.92	0 0 58.1	.4765284	5 32.3	5 16 22.2	1 27 36.8	.4750192
5	0 14 56.50	0 2 11.7	.4775215	5 16.7	5 17 50.1	1 27 38.4	.4750180
9	0 15 8.05	0 3 37.8	.4784992	5 1.2	5 19 17.9	1 27 39.9	.4750167
13	0 15 21.55	0 5 16.4	.4794567	4 45.7	5 20 45.8	1 27 41.5	.4750154
17	0 15 36.93	0 7 6.8	.4803897	4 30.2	5 22 13.6	1 27 43.0	.4750142
21	0 15 54.13	0 9 8.5	.4812937	4 14.7	5 23 41.4	1 27 44.6	.4750129
25	0 16 13.06	0 11 21.1	.4821648	3 59.3	5 25 9.2	1 27 46.1	.4750116
29	0 16 33.66	0 13 44.1	.4829988	3 43.9	5 26 37.0	1 27 47.7	.4750103
Feb. 2	0 16 55.85	0 16 16.9	.4837928	3 28.6	5 28 4.7	1 27 49.2	.4750091
6	0 17 19.57	0 18 58.9	.4845436	3 13.3	5 29 32.4	1 27 50.8	.4750078
10	0 17 44.69	0 21 49.4	.4852479	2 58.0	5 31 0.1	1 27 52.3	.4750065
14	0 18 11.13	0 24 47.7	.4859018	2 42.7	5 32 27.8	1 27 53.9	.4750052
18	0 18 38.77	0 27 53.1	.4865036	2 27.4	5 33 55.4	1 27 55.4	.4750040
22	0 19 7.49	0 31 4.8	.4870506	2 12.1	5 35 23.0	1 27 57.0	.4750027
26	0 19 37.20	0 34 22.2	.4875413	1 56.9	5 36 50.6	1 27 58.5	.4750014
Mar. 1	0 20 7.79	0 37 44.5	.4879736	1 41.7	5 38 18.2	1 28 0.1	.4750001
5	0 20 39.15	0 41 10.9	.4883460	1 26.5	5 39 45.8	1 28 1.6	.4749988
9	0 21 11.16	0 44 40.6	.4886567	1 11.3	5 41 13.4	1 28 3.1	.4749975
13	0 21 43.69	0 48 12.9	.4889052	0 56.1	5 42 40.9	1 28 4.6	.4749963
17	0 22 16.62	0 51 46.9	.4890902	0 40.9	5 44 8.4	1 28 6.2	.4749950
21	0 22 49.83	0 55 21.8	.4892117	0 25.8	5 45 35.9	1 28 7.7	.4749937
25	0 23 23.20	0 58 56.9	.4892694	0 10.6	5 47 3.4	1 28 9.3	.4749924
29	0 23 56.61	1 2 31.4	.4892636	23 51.6	5 48 31.0	1 28 10.8	.4749911
Apr. 2	0 24 29.97	1 6 4.6	.4891942	23 36.4	5 49 58.6	1 28 12.4	.4749898
6	0 25 3.15	1 9 35.8	.4890616	23 21.2	5 51 26.2	1 28 13.9	.4749886
10	0 25 36.01	1 13 4.1	.4888657	23 6.0	5 52 53.8	1 28 15.4	.4749873
14	0 26 8.44	1 16 28.8	.4886084	22 50.9	5 54 21.4	1 28 16.9	.4749861
18	0 26 40.33	1 19 49.1	.4882909	22 35.7	5 55 49.0	1 28 18.5	.4749848
22	0 27 11.57	1 23 4.3	.4879148	22 20.5	5 57 16.6	1 28 20.0	.4749835
26	0 27 42.07	1 26 13.9	.4874815	22 5.3	5 58 44.3	1 28 21.5	.4749822
30	0 28 11.72	1 29 17.3	.4869929	21 50.0	6 0 12.0	1 28 23.0	.4749809
May 4	0 28 40.41	1 32 13.7	.4864503	21 34.7	6 1 39.7	1 28 24.6	.4749796
8	0 29 8.05	1 35 2.6	.4858564	21 19.4	6 3 7.4	1 28 26.1	.4749783
12	0 29 34.52	1 37 43.2	.4852133	21 4.2	6 4 35.2	1 28 27.7	.4749770
16	0 29 59.75	1 40 15.2	.4845242	20 48.9	6 6 3.0	1 28 29.2	.4749757
20	0 30 23.64	1 42 38.0	.4837921	20 33.6	6 7 30.8	1 28 30.7	.4749744
24	0 30 46.13	1 44 51.1	.4830198	20 18.2	6 8 58.6	1 28 32.2	.4749731
28	0 31 7.14	1 46 54.2	.4822100	20 2.8	6 10 26.5	1 28 33.7	.4749718
June 1	0 31 26.60	1 48 46.8	.4813662	19 47.4	6 11 54.4	1 28 35.2	.4749706
5	0 31 44.42	1 50 28.3	.4804910	19 32.0	6 13 22.2	1 28 36.8	.4749693
9	0 32 0.55	1 51 58.5	.4795890	19 16.5	6 14 50.1	1 28 38.3	.4749680
13	0 32 14.92	1 53 17.1	.4786644	19 1.0	6 16 18.0	1 28 39.8	.4749667
17	0 32 27.51	1 54 24.0	.4777208	18 45.5	6 17 45.9	1 28 41.3	.4749654
21	0 32 38.28	1 55 18.9	.4767617	18 29.9	6 19 13.9	1 28 42.9	.4749641
25	0 32 47.19	1 56 1.6	.4757915	18 14.3	6 20 41.8	1 28 44.4	.4749628
29	0 32 54.20	1 56 32.0	.4748139	17 58.7	6 22 9.7	1 28 45.9	.4749615
July 3	0 32 59.30	1 56 50.1	.4738337	17 43.0	6 23 37.6	1 28 47.4	.4749602

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	North. ° ' "	I	h m	° ' "	South. ° ' "	I
July 3	0 32 59.30	1 56 50.1	4738337	17 43.0	6 23 37.6	1 28 47.4	4749602
7	0 33 2.46	1 56 55.7	4728551	17 27.3	6 25 5.5	1 28 48.9	4749589
11	0 33 3.69	1 56 48.9	4718828	17 11.6	6 26 33.4	1 28 50.4	4749576
15	0 33 2.99	1 56 29.8	4709214	16 55.9	6 28 1.3	1 28 51.9	4749563
19	0 33 0.40	1 55 58.7	4699752	16 40.1	6 29 29.1	1 28 53.4	4749550
23	0 32 55.93	1 55 15.8	4690483	16 24.3	6 30 57.0	1 28 54.9	4749537
27	0 32 49.61	1 54 21.3	4681451	16 8.5	6 32 24.8	1 28 56.4	4749524
31	0 32 41.47	1 53 15.3	4672700	15 52.6	6 33 52.6	1 28 57.9	4749511
Aug. 4	0 32 31.56	1 51 58.4	4664275	15 36.7	6 35 20.4	1 28 59.4	4749498
8	0 32 19.93	1 50 31.0	4656225	15 20.8	6 36 48.2	1 29 1.0	4749485
12	0 32 6.67	1 48 53.7	4648587	15 4.9	6 38 15.9	1 29 2.5	4749472
16	0 31 51.86	1 47 6.8	4641401	14 48.9	6 39 43.6	1 29 4.0	4749458
20	0 31 35.60	1 45 11.2	4634701	14 32.9	6 41 11.3	1 29 5.5	4749445
24	0 31 17.95	1 43 7.5	4628523	14 16.9	6 42 39.0	1 29 7.0	4749432
28	0 30 59.04	1 40 56.4	4622901	14 0.8	6 44 6.6	1 29 8.5	4749419
Sept. 1	0 30 38.95	1 38 38.4	4617872	13 44.8	6 45 34.3	1 29 10.0	4749406
5	0 30 17.83	1 36 14.6	4613463	13 28.7	6 47 1.9	1 29 11.5	4749393
9	0 29 55.79	1 33 45.7	4609708	13 12.6	6 48 29.5	1 29 13.0	4749380
13	0 29 32.99	1 31 12.8	4606618	12 56.4	6 49 57.1	1 29 14.5	4749367
17	0 29 9.56	1 28 36.7	4604213	12 40.3	6 51 24.7	1 29 16.0	4749354
21	0 28 45.65	1 25 58.4	4602506	12 24.2	6 52 52.3	1 29 17.5	4749341
25	0 28 21.37	1 23 18.7	4601513	12 8.1	6 54 19.9	1 29 19.0	4749328
29	0 27 56.89	1 20 38.8	4601241	11 52.0	6 55 47.5	1 29 20.4	4749315
Oct. 3	0 27 32.37	1 17 59.5	4601704	11 35.9	6 57 15.1	1 29 21.9	4749301
7	0 27 7.96	1 15 22.0	4602891	11 19.7	6 58 42.8	1 29 23.4	4749288
11	0 26 43.84	1 12 47.2	4604803	11 3.6	7 0 10.4	1 29 24.9	4749275
15	0 26 20.14	1 10 16.0	4607424	10 47.4	7 1 38.0	1 29 26.4	4749262
19	0 25 57.01	1 7 49.5	4610745	10 31.3	7 3 5.7	1 29 27.9	4749249
23	0 25 34.60	1 5 28.5	4614747	10 15.2	7 4 33.4	1 29 29.4	4749236
27	0 25 13.06	1 3 14.1	4619418	9 59.1	7 6 1.1	1 29 30.9	4749222
31	0 24 52.52	1 1 7.1	4624728	9 43.1	7 7 28.8	1 29 32.3	4749209
Nov. 4	0 24 33.13	0 59 8.3	4630655	9 27.0	7 8 56.5	1 29 33.8	4749196
8	0 24 15.02	0 57 18.5	4637159	9 11.0	7 10 24.3	1 29 35.3	4749183
12	0 23 58.31	0 55 38.7	4644205	8 55.0	7 11 52.1	1 29 36.8	4749169
16	0 23 43.10	0 54 9.2	4651755	8 39.0	7 13 19.9	1 29 38.3	4749156
20	0 23 29.48	0 52 50.4	4659776	8 23.1	7 14 47.7	1 29 39.8	4749142
24	0 23 17.56	0 51 43.0	4668220	8 7.2	7 16 15.6	1 29 41.2	4749129
28	0 23 7.44	0 50 48.0	4677044	7 51.3	7 17 43.5	1 29 42.7	4749115
Dec. 2	0 22 59.18	0 50 5.4	4686201	7 35.4	7 19 11.5	1 29 44.2	4749102
6	0 22 52.84	0 49 35.7	4695647	7 19.6	7 20 39.4	1 29 45.7	4749089
10	0 22 48.45	0 49 18.9	4705326	7 3.8	7 22 7.3	1 29 47.1	4749076
14	0 22 46.07	0 49 15.3	4715182	6 48.0	7 23 35.3	1 29 48.6	4749062
18	0 22 45.72	0 49 25.0	4725172	6 32.3	7 25 3.3	1 29 50.1	4749049
22	0 22 47.41	0 49 48.1	4735251	6 16.6	7 26 31.3	1 29 51.6	4749035
26	0 22 51.15	0 50 24.4	4745366	6 0.9	7 27 59.2	1 29 53.0	4749022
30	0 22 56.96	0 51 14.0	4755464	5 45.3	7 29 27.2	1 29 54.5	4749008
34	0 23 4.80	0 52 16.7	4765496	5 29.7	7 30 55.1	1 29 56.0	4748995

**PLANETARY
EPHEMERIDES
AT
TRANSIT.**

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	s	s	South. ° ' "	South. ° ' "	+	"	"
Jan. 1	19 59 6.48	20 5 13.86	15.52	0.21	22 31 59.5	22 8 42.3	56.7	2.9	7.3
3	20 11 10.09	20 16 53.46	14.59	0.21	21 44 16.2	21 18 48.3	62.4	3.0	7.6
5	20 22 22.07	20 27 33.79	13.36	0.22	20 52 27.7	20 25 24.6	66.8	3.1	8.0
7	20 32 26.25	20 36 56.85	11.75	0.23	19 57 51.5	19 30 2.3	69.3	3.3	8.4
9	20 41 2.78	20 44 41.02	9.69	0.24	19 2 13.5	18 34 43.1	69.3	3.4	8.8
11	20 47 48.43	20 50 21.76	7.12	0.25	18 7 51.3	17 41 59.6	66.1	3.6	9.3
13	20 52 17.84	20 53 33.67	4.04	0.27	17 17 31.0	16 54 49.1	59.2	3.8	9.9
15	20 54 6.64	20 53 54.68	0.45	0.29	16 34 17.1	16 16 17.1	48.3	4.1	10.5
17	20 52 56.58	20 51 12.23	3.39	0.30	16 1 8.8	15 49 8.5	34.0	4.4	11.2
19	20 48 42.87	20 45 31.14	7.13	0.31	15 40 27.0	15 38 9.5	17.5	4.6	11.8
21	20 41 41.38	20 37 19.45	10.31	0.33	15 33 15.2	15 34 35.4	0.6	4.8	12.4
23	20 32 32.56	^{19 57 17.44} 20 32 32.56	12.36	0.34	15 38 56.2	^{15 45 57.8} 15 38 56.2	14.4	5.0	12.8
25	20 17 6.94	20 12 5.93	12.80	0.35	16 6 28.7	16 19 6.2	29.9	5.1	13.0
27	20 7 21.92	20 3 1.24	11.39	0.35	16 32 45.5	16 47 3.7	35.1	5.1	13.0
29	19 59 8.95	19 55 48.59	9.03	0.35	17 1 40.7	17 16 19.7	36.7	5.0	12.8
31	19 53 2.41	19 50 51.54	6.19	0.34	17 30 46.5	17 44 49.0	35.7	4.9	12.5
Feb. 2	19 49 16.05	19 48 15.34	3.25	0.33	17 58 18.0	18 11 5.5	32.9	4.7	12.1
4	19 47 48.19	19 47 53.04	0.45	0.32	18 23 5.5	18 34 12.7	28.9	4.5	11.7
6	19 48 28.05	19 49 31.29	+	0.31	18 44 82.9	18 53 32.5	24.2	4.4	11.2
8	19 51 0.70	19 52 54.37	4.24	0.30	19 1 38.7	19 8 38.8	18.9	4.2	10.7
10	19 55 10.36	19 57 46.87	6.11	0.28	19 14 31.0	19 19 13.0	13.2	4.0	10.3
12	20 0 42.20	20 3 54.75	7.68	0.27	19 22 43.4	19 25 1.2	7.3	3.8	9.9
14	20 7 23.03	20 11 5.72	8.99	0.26	19 26 4.7	19 25 53.2	1.1	3.7	9.5
16	20 15 1.58	20 19 9.49	10.09	0.25	19 24 26.2	19 21 42.5	+	3.6	9.2
18	20 23 28.37	20 27 57.30	11.00	0.25	19 17 41.7	19 12 23.3	11.7	3.5	8.9
20	20 32 35.43	20 37 22.00	11.77	0.24	19 5 47.0	18 57 52.4	18.1	3.4	8.6
22	20 42 16.31	20 47 17.70	12.41	0.23	18 48 39.1	18 38 7.3	24.7	3.3	8.4
24	20 52 25.60	20 57 39.50	12.96	0.23	18 26 16.8	18 13 7.5	31.2	3.2	8.1
26	21 2 58.96	21 8 23.52	13.42	0.22	17 58 39.1	17 42 51.9	37.8	3.1	7.9
28	21 13 52.80	21 19 26.48	13.81	0.21	17 25 46.2	17 7 21.5	44.4	3.0	7.7
Mar. 1	21 25 4.22	21 30 45.79	14.15	0.21	16 47 38.5	16 26 37.3	50.9	3.0	7.6
3	21 36 30.93	21 42 19.43	14.45	0.20	16 4 17.9	15 40 40.5	57.5	2.9	7.4
5	21 48 11.10	21 54 5.78	14.72	0.20	15 15 45.6	14 49 33.2	63.9	2.9	7.3
7	22 0 3.36	22 6 3.71	14.96	0.19	14 22 4.0	13 53 17.7	70.3	2.8	7.1
9	22 12 6.75	22 18 12.44	15.18	0.19	13 23 15.1	12 51 56.4	76.7	2.7	7.0
11	22 24 20.71	22 30 31.57	15.40	0.18	12 19 21.7	11 45 31.7	83.0	2.7	6.9
13	22 36 44.96	22 43 0.93	15.61	0.18	11 10 26.6	10 34 6.8	89.3	2.6	6.8
15	22 49 19.51	22 55 40.78	15.83	0.18	9 56 32.8	9 17 45.0	95.5	2.6	6.7
17	23 2 4.76	23 8 31.54	16.06	0.18	8 37 44.3	7 56 31.0	101.5	2.6	6.6
19	23 15 1.19	23 21 33.86	16.30	0.18	7 14 6.1	6 30 30.0	107.5	2.6	6.6

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in 1 Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	s	South. ° ' "	South. ° ' "	+	"	"
Mar. 21	23 28 9.63	23 34 48.62	16.56	0.17	5 45 44.3	4 59 49.7	113.3	2.5	6.5
23	23 41 30.98	23 48 16.84	16.84	0.17	4 12 47.6	3 24 39.6	119.0	2.5	6.4
25	23 55 6.32	0 1 59.55	17.14	0.17	2 35 27.5	1 45 13.3	124.3	2.5	6.4
27	0 8 56.67	0 15 57.76	17.46	0.17	0 53 59.8	0 1 49.6	129.3	2.5	6.4
29	0 23 2.94	0 30 12.23	17.80	0.17	0 51 13.4	1 45 5.6	133.7	2.5	6.4
31	0 37 25.68	0 44 43.24	18.15	0.17	2 39 41.9	3 34 56.9	137.4	2.5	6.4
Apr. 2	* * *	0 52 4.83	*	*	* * *	4 30 44.5	*	*	*
4	0 59 30.27	1 6 59.36	18.64	0.17	5 26 57.2	6 23 27.0	140.9	2.5	6.4
6	1 14 31.77	1 22 7.05	18.91	0.17	7 20 4.9	8 16 40.8	141.6	2.5	6.5
8	1 29 44.64	1 37 23.92	19.11	0.17	9 13 3.8	10 9 2.0	140.5	2.6	6.6
10	1 45 4.05	1 52 44.18	19.18	0.17	11 4 22.8	11 58 53.6	137.4	2.6	6.7
12	2 0 23.30	2 8 0.28	19.09	0.18	12 52 20.5	13 44 31.1	132.1	2.7	6.9
14	2 15 33.99	2 23 3.19	18.82	0.19	14 35 12.4	15 24 12.0	124.7	2.8	7.1
16	2 30 26.66	2 37 43.14	18.34	0.20	16 11 19.4	16 56 23.9	115.3	2.9	7.3
18	2 44 51.42	2 51 50.28	17.66	0.21	17 39 17.3	18 19 52.2	104.4	3.0	7.6
20	2 58 38.58	3 5 15.26	16.78	0.22	18 58 2.9	19 33 45.0	92.4	3.1	7.9
22	3 11 39.32	3 17 49.80	15.73	0.23	20 6 55.7	20 37 33.0	79.8	3.2	8.3
24	3 23 45.82	3 29 26.58	14.52	0.24	21 5 36.3	21 31 5.8	66.9	3.4	8.7
26	3 34 51.35	3 39 59.38	13.19	0.25	21 54 2.5	22 14 27.8	54.2	3.5	9.1
28	3 44 50.05	3 49 22.73	11.74	0.27	22 32 23.5	22 47 52.1	41.8	3.7	9.6
30	3 53 36.87	3 57 31.91	10.19	0.29	23 0 55.8	23 11 37.3	29.7	3.9	10.1
May 2	4 1 7.38	4 4 22.82	8.56	0.30	23 19 59.2	23 26 4.0	18.0	4.1	10.7
4	4 7 17.87	4 9 52.16	6.86	0.32	23 29 54.4	23 31 33.0	6.8	4.4	11.3
6	4 12 5.46	4 13 57.56	5.11	0.33	23 31 2.3	23 28 25.2	—	3.9	11.9
8	4 15 28.37	4 16 37.97	3.34	0.35	23 23 44.1	23 17 2.0	14.3	4.9	12.5
10	4 17 26.48	4 17 54.23	1.59	0.37	23 8 22.1	22 57 48.0	24.1	5.1	13.1
12	4 18 1.71	4 17 49.62	0.10	0.39	22 45 23.8	22 31 14.4	33.2	5.3	13.7
14	4 17 18.82	4 16 30.42	1.66	0.40	22 15 35.5	21 58 4.1	41.5	5.5	14.2
16	4 15 25.70	4 14 6.17	3.02	0.41	21 39 17.6	21 19 15.4	48.6	5.7	14.7
18	4 12 33.58	4 10 49.82	4.10	0.42	20 58 7.4	20 36 5.7	54.0	5.9	15.1
20	4 8 56.95	4 6 57.15	4.86	0.43	20 13 23.2	19 50 13.6	57.4	6.0	15.4
22	4 4 52.71	4 3 48.23	5.25	0.43	19 26 52.0	18 40 33.4	58.4	6.1	15.6
24	3 58 34.50	3 56 34.33	5.11	0.43	18 18 8.9	17 56 33.9	55.1	6.1	15.6
26	3 54 40.62	3 52 55.25	4.58	0.42	17 36 3.3	17 16 50.6	49.7	6.0	15.5
28	3 51 19.94	3 49 56.22	3.74	0.42	16 59 7.9	16 43 5.4	42.3	6.0	15.3
30	3 48 45.36	3 47 48.49	2.67	0.41	16 28 52.2	16 16 35.4	33.2	5.9	15.0
June 1	3 47 6.54	3 46 40.24	1.43	0.39	16 6 20.3	15 58 10.7	23.0	5.7	14.6
3	3 46 30.14	3 46 36.68	0.08	0.38	15 52 8.6	15 48 14.4	12.4	5.5	14.2
5	3 47 0.16	3 47 40.76	+	1.33	15 46 27.8	15 46 46.6	1.8	5.3	13.7

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+ s	s	North. ° ' "	North. ° ' "	+ "	"	"
June 7	3 48 38.54	3 49 53.55	2.77	0.35	15 49 8.5	15 53 29.1	8.4	5.1	13.1
9	3 51 25.76	3 53 15.10	4.20	0.34	15 59 44.3	16 7 49.0	18.0	4.9	12.5
11	3 55 21.48	3 57 44.81	5.62	0.32	16 17 37.5	16 29 4.2	26.6	4.7	12.0
13	4 0 24.93	4 3 21.78	7.02	0.31	16 42 2.5	16 56 26.2	34.3	4.5	11.5
15	4 6 35.26	4 10 5.29	8.41	0.30	17 12 7.8	17 29 0.8	40.8	4.2	10.9
17	4 13 51.79	4 17 54.71	9.78	0.28	17 46 57.9	18 5 51.8	46.1	4.0	10.3
19	4 22 14.04	4 26 49.80	11.15	0.27	18 25 34.5	18 45 58.2	50.2	3.8	9.8
21	4 31 42.00	4 36 50.69	12.52	0.26	19 6 54.6	19 28 15.2	52.9	3.6	9.3
23	4 42 15.87	4 47 57.62	13.89	0.25	19 49 51.6	20 11 34.1	54.2	3.5	8.9
25	4 53 55.95	5 0 10.90	15.28	0.24	20 33 13.5	20 54 39.5	53.9	3.3	8.5
27	5 6 42.44	5 13 30.48	16.66	0.23	21 15 41.9	21 36 9.4	51.9	3.2	8.2
29	5 20 34.88	5 27 55.39	18.02	0.22	21 55 51.2	22 14 34.9	48.1	3.0	7.8
July 1	5 35 31.71	5 43 23.30	19.34	0.21	22 32 8.8	22 48 20.7	42.3	2.9	7.5
3	5 51 29.56	5 59 49.68	20.56	0.21	23 2 57.9	23 15 48.5	34.4	2.8	7.3
5	6 8 22.69	6 17 7.42	21.63	0.21	23 26 40.6	23 35 22.9	24.5	2.8	7.1
7	6 26 2.51	6 35 6.47	22.49	0.20	23 41 45.6	23 45 39.6	12.9	2.7	6.9
9	6 44 17.67	6 53 34.32	23.09	0.19	23 46 57.6	23 45 34.0	0.1	2.6	6.7
11	7 2 54.65	7 12 16.82	23.40	0.19	23 41 25.3	23 34 29.7	13.8	2.6	6.6
13	7 21 39.06	7 30 59.64	23.40	0.18	23 24 47.8	23 12 21.7	27.7	2.5	6.5
15	7 40 16.98	* * *	23.13	0.18	22 57 15.3	* * *	41.0	2.5	6.5
17	7 49 29.61	7 58 36.26	22.91	0.18	22 39 34.3	22 19 25.2	47.3	2.5	6.4
19	8 7 35.84	8 16 27.40	22.32	0.18	21 56 56.0	21 32 14.8	59.0	2.5	6.4
21	8 25 10.20	8 33 43.66	21.59	0.18	21 5 30.5	20 36 52.5	69.3	2.5	6.4
23	8 42 7.36	8 50 20.99	20.78	0.18	20 6 29.3	19 34 30.1	78.0	2.5	6.4
25	8 58 24.37	9 6 17.43	19.93	0.18	19 1 3.7	18 26 18.4	85.3	2.5	6.5
27	9 14 0.18	9 21 32.68	19.07	0.18	17 50 22.4	17 13 23.2	91.2	2.5	6.5
29	9 28 55.04	9 36 7.42	18.22	0.18	16 35 27.9	15 56 43.4	95.9	2.6	6.6
31	9 43 10.04	9 50 3.10	17.41	0.18	15 17 16.1	14 37 11.7	99.5	2.6	6.7
Aug. 2	9 56 46.81	10 3 21.42	16.63	0.18	13 56 36.0	13 15 34.2	102.1	2.6	6.8
4	10 9 47.18	10 16 4.31	15.89	0.19	12 34 10.9	11 52 31.0	103.8	2.7	6.9
6	10 22 13.03	10 28 13.57	15.19	0.19	11 10 38.7	10 28 37.9	104.9	2.7	7.0
8	10 34 6.13	10 39 50.90	14.53	0.19	9 46 32.8	9 4 26.7	105.3	2.8	7.1
10	10 45 28.06	10 50 57.74	13.89	0.19	8 22 23.2	7 40 25.6	105.1	2.8	7.3
12	10 56 20.13	11 1 35.26	13.28	0.19	6 58 37.1	6 17 1.1	104.3	2.9	7.4
14	11 6 43.27	11 11 44.24	12.69	0.20	5 35 40.4	4 54 38.0	103.0	3.0	7.6
16	11 16 38.18	11 21 25.12	12.10	0.20	4 13 56.9	3 33 40.2	101.2	3.0	7.8
18	11 26 5.04	11 30 37.93	11.52	0.21	2 53 50.7	2 14 31.7	99.0	3.1	7.9
20	11 35 3.68	11 39 22.23	10.92	0.21	1 35 46.2	0 57 37.3	96.2	3.2	8.1
22	11 43 33.39	11 47 37.02	10.31	0.21	0 20 8.4	South. 0 16 37.1	92.8	3.2	8.3
24	11 51 32.87	11 55 20.68	9.66	0.22	0 52 35.5	1 27 42.7	88.9	3.3	8.6
26	11 59 0.13	12 2 30.86	8.96	0.22	2 1 54.6	2 35 6.9	84.3	3.4	8.9

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid' passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+ s	s	South. ° ' "	South. ° ' "	— "	"	"
Aug. 28	12 5 52.45	12 9 4.41	8.20	0.23	3 7 14.6	0 1 8	78.9	3.5	9.1
30	12 12 6.22	12 14 57.29	7.35	0.24	4 7 55.7	3 38 12.8	72.6	3.7	9.4
Sept. 1	12 17 36.92	12 20 4.38	6.40	0.25	5 3 10.2	4 36 17.0	65.3	3.8	9.8
3	12 22 18.90	12 24 19.59	5.32	0.26	5 52 3.0	5 28 28.2	56.7	4.0	10.2
5	12 26 5.55	12 27 35.76	4.09	0.27	6 33 28.4	6 13 46.4	46.6	4.1	10.5
7	12 28 49.22	12 29 44.84	2.70	0.28	7 6 7.8	6 50 59.1	34.8	4.2	10.9
9	12 30 21.54	12 30 38.29	1.12	0.29	7 28 31.8	7 18 43.0	20.9	4.4	11.3
11	12 30 34.07	12 30 8.02	0.63	0.30	7 38 58.7	7 35 21.5	4.8	4.5	11.7
13	12 29 19.41	12 28 7.78	2.50	0.31	7 35 42.2	7 39 9.8	+	4.7	12.2
15	12 26 33.00	12 24 35.34	4.43	0.33	7 17 3.5	7 28 23.4	13.4	4.9	12.6
17	12 22 15.65	12 19 35.33	6.26	0.34	6 41 53.5	7 1 34.6	33.5	5.0	12.9
19	12 16 36.50	12 13 21.98	7.80	0.34	5 50 4.7	6 18 0.7	54.5	5.1	13.1
21	12 9 55.38	12 6 21.02	8.80	0.34	4 43 10.1	5 18 20.0	74.7	5.1	13.2
23	{12 2 48.22}	{11 55 42.55}	{8.81}	{0.35}	{4 24 8.7}	4 5 6.8	{91.8}	{5.1}	{13.2}
25	11 52 29.86	11 49 36.43	7.66	0.34	1 19 4.0	2 0 54.3	{103.3}	{5.0}	{12.8}
27	11 47 7.27	11 45 6.68	5.65	0.32	0 0 21.4	0 38 34.8	103.3	5.0	12.8
29	11 43 38.14	11 42 44.19	2.98	0.30	North. 1 6 4.2	North. 0 34 46.0	92.0	4.8	12.3
Oct. 1	11 42 26.46	11 42 45.65	+	0.29	1 54 59.5	1 32 57.5	73.0	4.5	11.7
3	11 43 41.57	11 45 13.29	3.08	0.27	2 23 26.7	2 11 52.4	48.7	4.3	11.1
5	11 47 19.22	11 49 57.30	5.93	0.26	2 30 38.9	2 29 40.7	22.2	4.0	10.4
7	11 53 5.13	11 56 40.10	8.41	0.24	2 17 35.3	2 26 32.1	4.0	3.8	9.8
9	12 0 39.37	12 5 0.22	10.44	0.23	1 46 26.8	2 4 7.0	28.2	3.6	9.2
11	12 9 39.97	12 14 36.07	12.01	0.22	1 0 2.5	1 24 57.8	49.1	3.4	8.7
13	12 19 46.16	12 25 8.07	13.18	0.20	0 1 23.0	0 32 3.4	66.3	3.2	8.2
15	12 30 39.92	12 36 20.01	14.01	0.19	South. 1 6 37.8	South. 0 31 37.3	79.7	3.0	7.8
17	12 42 6.87	12 47 59.24	14.58	0.18	2 21 25.7	1 43 19.6	89.8	2.9	7.5
19	12 53 56.04	12 59 56.39	14.95	0.18	3 40 49.9	3 0 40.6	96.7	2.8	7.2
21	13 5 59.53	13 12 4.89	15.18	0.17	5 3 3.0	4 21 41.1	101.3	2.7	7.0
23	13 18 11.97	13 24 20.38	15.33	0.17	6 26 40.1	5 44 45.6	103.9	2.6	6.8
25	13 30 29.83	13 36 40.09	15.41	0.17	7 50 33.7	7 8 38.5	104.9	2.5	6.6
27	13 42 51.00	13 49 2.44	15.47	0.16	9 13 51.9	8 32 20.1	104.7	2.5	6.4
29	13 55 14.36	14 1 26.69	15.51	0.16	10 35 53.6	9 55 4.5	103.5	2.4	6.3
31	14 7 39.46	14 13 52.66	15.54	0.16	11 56 6.7	11 16 15.5	101.5	2.4	6.2
Nov. 2	14 20 6.32	14 26 20.50	15.58	0.16	13 14 5.3	12 35 24.1	98.9	2.4	6.1
4	14 32 35.25	14 38 50.63	15.63	0.16	14 29 28.5	13 52 7.4	95.9	2.4	6.1
6	14 45 6.73	14 51 23.61	15.69	0.16	15 41 59.0	15 6 6.4	92.5	2.3	6.0
						16 17 4.7	88.7	2.3	6.0

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in 1 Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	s	South. ° ' "	South. ° ' "	— "	"	"
Nov. 8	14 57 41.35	* * *	15.76	0.16	16 51 21.8	* * *	84.7	2.3	6.0
10	15 4 0.04	15 10 19.76	15.80	0.16	17 24 48.4	17 57 23.2	82.5	2.3	6.0
12	15 16 40.59	15 23 2.59	15.89	0.16	18 29 4.8	18 59 51.6	78.1	2.3	5.9
14	15 29 25.84	15 35 50.41	16.00	0.16	19 29 42.0	19 58 34.8	73.4	2.3	5.9
16	15 42 16.35	15 48 43.70	16.11	0.16	20 26 28.3	20 53 22.0	68.5	2.3	5.9
18	15 55 12.53	16 1 42.83	16.23	0.16	21 19 13.4	21 44 1.6	63.3	2.3	5.9
20	16 8 14.63	16 14 47.96	16.36	0.17	22 7 45.1	22 30 22.6	57.9	2.3	6.0
22	16 21 22.78	16 27 59.09	16.48	0.17	22 51 52.3	23 12 13.2	52.3	2.3	6.0
24	16 34 36.85	16 41 16.03	16.60	0.17	23 31 23.9	23 49 22.5	46.5	2.3	6.0
26	16 47 56.52	16 54 38.27	16.71	0.17	24 6 7.8	24 21 38.3	40.3	2.4	6.1
28	17 1 21.14	17 8 5.02	16.81	0.17	24 35 52.7	24 48 49.3	34.0	2.4	6.1
30	17 14 49.74	17 21 35.12	16.88	0.17	25 0 26.9	25 10 43.7	27.4	2.4	6.2
Dec. 2	17 28 20.91	17 35 6.88	16.91	0.17	25 19 38.5	25 27 10.4	20.6	2.4	6.3
4	17 41 52.76	17 48 38.21	16.90	0.18	25 33 17.6	25 37 58.9	13.5	2.5	6.4
6	17 55 22.84	18 2 6.24	16.84	0.18	25 41 13.7	25 43 0.7	6.3	2.5	6.6
8	18 8 47.92	18 15 27.34	16.69	0.19	25 43 19.1	25 42 8.2	+	1.1	2.6
10	18 22 3.91	18 28 36.91	16.45	0.19	25 39 27.9	25 35 17.6	8.6	2.7	6.9
12	18 35 5.58	18 41 28.98	16.09	0.20	25 29 37.9	25 22 29.1	16.0	2.8	7.1
14	18 47 46.13	18 53 55.90	15.57	0.21	25 13 52.6	25 3 49.6	23.3	2.9	7.3
16	18 59 57.00	19 5 47.91	14.84	0.22	24 52 22.4	24 39 33.7	30.4	3.0	7.6
18	19 11 27.06	19 16 52.55	13.86	0.23	24 25 27.6	24 10 8.7	36.8	3.1	7.9
20	19 22 2.33	19 26 54.08	12.55	0.23	23 53 42.5	23 36 16.5	42.4	3.2	8.2
22	19 31 25.16	19 35 32.82	10.83	0.24	23 17 59.1	22 58 59.3	46.7	3.3	8.6
24	19 39 13.94	19 42 25.20	8.61	0.25	22 39 28.9	22 19 40.9	49.2	3.5	9.0
26	19 45 3.16	19 47 4.25	5.84	0.26	21 59 49.0	21 40 8.9	49.5	3.7	9.5
28	19 48 24.98	19 49 2.05	2.48	0.28	21 20 56.5	21 2 28.5	47.2	3.9	10.1
30	19 48 52.70	19 47 54.82	1.39	0.30	20 45 1.2	20 28 50.3	42.1	4.2	10.8
32	19 46 7.49		5.49	0.31	20 14 9.1		34.7	4.4	11.4

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in 1 Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	"	"	South. ° ' "	South. ° ' "	"	"	"
Jan. 1	15 37 26.72	15 42 1.98	11.44	0.66	16 30 52.9	16 47 23.6	41.6	9.6	10.0
3	15 46 38.74	15 51 17.00	11.56	0.66	17 3 36.7	17 19 31.2	40.2	9.4	9.8
5	15 55 56.76	16 0 37.96	11.69	0.65	17 35 6.4	17 50 21.2	38.5	9.3	9.7
7	16 5 20.58	16 10 4.60	11.81	0.64	18 5 15.0	18 19 46.8	36.8	9.1	9.5
9	16 14 50.00	16 19 36.74	11.93	0.63	18 33 55.9	18 47 41.3	34.9	9.0	9.4
11	16 24 24.82	16 29 14.19	12.03	0.62	19 1 2.4	19 13 58.4	32.9	8.8	9.2
13	16 34 4.84	16 38 56.74	12.14	0.62	19 26 28.4	19 38 31.9	30.6	8.8	9.1
15	16 43 49.87	16 48 44.22	12.24	0.61	19 50 8.1	20 1 16.3	28.3	8.7	9.0
17	16 53 39.73	16 58 36.37	12.34	0.60	20 11 55.8	20 22 6.1	26.0	8.5	8.8
19	17 3 34.09	17 8 32.91	12.43	0.60	20 31 46.4	20 40 56.1	23.6	8.4	8.7
21	17 13 32.79	17 18 33.66	12.52	0.59	20 49 34.7	20 57 41.5	21.0	8.3	8.6
23	17 23 35.48	17 28 38.23	12.60	0.59	21 5 16.0	21 12 17.6	18.3	8.2	8.5
25	17 33 41.84	17 38 46.29	12.67	0.58	21 18 45.9	21 24 40.2	15.5	8.1	8.4
27	17 43 51.52	17 48 57.49	12.73	0.58	21 30 0.3	21 34 45.6	12.7	8.0	8.3
29	17 54 4.15	17 59 11.44	12.79	0.57	21 38 55.8	21 42 30.5	9.7	7.8	8.1
31	18 4 19.31	18 9 27.72	12.84	0.55	21 45 29.4	21 47 52.1	6.7	7.7	8.0
Feb. 2	18 14 36.60	18 19 45.88	12.88	0.55	21 49 38.4	21 50 48.1	3.7	7.6	7.9
4	18 24 55.52	18 30 5.46	12.91	0.54	21 51 20.9	21 51 16.6	0.6	7.5	7.8
							+		
6	18 35 15.62	18 40 25.96	12.93	0.53	21 50 35.2	21 49 16.5	2.5	7.4	7.7
8	18 45 36.41	18 50 46.92	12.94	0.53	21 47 20.4	21 44 46.8	5.6	7.4	7.7
10	18 55 57.43	19 1 7.89	12.94	0.52	21 41 35.7	21 37 47.2	8.7	7.3	7.6
12	19 6 18.25	19 11 28.47	12.93	0.52	21 33 21.1	21 28 17.7	11.8	7.2	7.5
14	19 16 38.48	19 21 48.25	12.91	0.50	21 22 36.9	21 16 19.0	15.0	7.1	7.4
16	19 26 57.73	19 32 6.87	12.88	0.50	21 9 24.0	21 1 52.1	18.1	7.0	7.3
18	19 37 15.62	19 42 23.94	12.85	0.49	20 53 43.5	20 44 58.4	21.1	6.9	7.2
20	19 47 31.79	19 52 39.13	12.81	0.48	20 35 37.1	20 25 39.9	24.1	6.8	7.1
22	19 57 45.92	20 2 52.14	12.77	0.48	20 15 7.0	20 3 58.7	27.1	6.8	7.1
24	20 7 57.73	20 13 2.67	12.72	0.47	19 52 15.4	19 39 57.5	30.0	6.7	7.0
26	20 18 6.92	20 23 10.47	12.66	0.46	19 27 5.3	19 13 39.3	32.9	6.6	6.9
28	20 28 13.27	20 33 15.31	12.60	0.46	18 59 40.0	18 45 7.6	35.7	6.6	6.9
Mar. 1	20 38 16.55	20 43 16.97	12.54	0.45	18 30 2.9	18 14 26.2	38.3	6.5	6.8
3	20 48 16.54	20 53 15.25	12.47	0.45	17 58 18.2	17 41 39.3	41.0	6.5	6.8
5	20 58 13.08	21 3 10.00	12.39	0.44	17 24 30.2	17 6 51.3	43.5	6.4	6.7
7	21 8 6.00	21 13 1.07	12.31	0.44	16 48 43.3	16 30 6.7	45.9	6.4	6.7
9	21 17 55.19	21 22 48.38	12.24	0.44	16 11 2.2	15 51 30.3	48.3	6.4	6.6
11	21 27 40.61	21 32 31.90	12.16	0.43	15 31 31.7	15 11 7.1	50.5	6.3	6.5
13	21 37 22.23	21 42 11.63	12.08	0.43	14 50 16.9	14 29 1.9	52.6	6.3	6.5
15	21 47 0.08	21 51 47.62	12.00	0.43	14 7 22.6	13 45 19.7	54.6	6.2	6.4
17	21 56 34.23	22 1 19.94	11.92	0.42	13 22 53.9	13 0 5.8	56.5	6.1	6.3
19	22 6 4.75	22 10 48.69	11.85	0.42	12 36 56.1	12 13 25.4	58.3	6.1	6.3
21	22 15 31.75	22 20 13.97	11.78	0.42	11 49 34.4	11 25 23.7	60.0	6.0	6.2
23	22 24 55.38	22 29 35.99	11.71	0.41	11 0 54.0	10 36 6.0	61.6	5.9	6.1
25	22 34 15.83	22 38 54.91	11.64	0.41	10 11 0.3	9 45 37.6	63.1	5.9	6.1

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	+	South. ° ' "	South. ° ' "	+	"	"
Mar. 27	22 43 33.27	22 48 10.94	11.58	0.40	9 19 58.6	8 54 3.9	64.5	5.9	6.1
29	22 52 47.92	22 57 24.26	11.53	0.39	8 27 54.4	8 1 30.6	65.7	5.8	6.0
31	23 1 59.97	23 6 35.08	11.48	0.39	7 34 53.3	7 8 3.1	66.8	5.8	6.0
April 2	23 11 9.61	23 15 43.61	11.43	0.38	6 41 0.9	6 13 47.2	67.8	5.7	5.9
4	23 20 17.10	23 24 50.10	11.38	0.38	5 46 22.8	5 18 48.4	68.7	5.7	5.9
6	23 29 22.64	23 33 54.77	11.35	0.38	4 51 4.6	4 23 12.2	69.5	5.7	5.9
8	23 38 26.50	23 42 57.89	11.32	0.38	3 55 11.8	3 27 4.2	70.2	5.6	5.8
10	23 47 28.95	23 51 59.72	11.29	0.38	2 58 50.0	2 30 29.9	70.7	5.6	5.8
12	23 56 30.25	0 1 0.56	11.27	0.38	2 2 4.5	1 33 34.6	71.1	5.6	5.8
14	0 5 30.71	0 10 0.71	11.26	0.37	1 5 0.8	0 36 23.9	71.5	5.5	5.7
16	0 14 30.62	0 19 0.47	11.25	0.37	0 7 44.4	0 20 57.0	71.7	5.5	5.7
18	0 23 30.29	0 28 0.14	11.25	0.37	North. 0 49 39.4	1 18 22.4	71.8	5.4	5.6
20	0 32 30.06	0 37 0.08	11.25	0.37	1 47 5.3	2 15 47.3	71.8	5.4	5.6
22	0 41 30.25	0 46 0.60	11.26	0.37	2 44 27.8	3 13 6.2	71.6	5.4	5.6
24	0 50 31.17	0 55 2.02	11.28	0.36	3 41 41.7	4 10 13.6	71.3	5.3	5.5
26	0 59 33.17	1 4 4.66	11.31	0.36	4 38 41.3	5 7 4.1	71.0	5.3	5.5
28	1 8 36.53	1 13 8.82	11.34	0.36	5 35 21.2	6 3 32.0	70.6	5.3	5.5
30	1 17 41.56	1 22 14.78	11.38	0.36	6 31 35.7	6 59 31.7	70.0	5.3	5.5
May 2	1 26 48.53	1 31 22.82	11.42	0.35	7 27 19.2	7 54 57.6	69.3	5.2	5.4
4	1 35 57.71	1 40 33.21	11.46	0.35	8 22 26.1	8 49 44.0	68.5	5.2	5.4
6	1 45 9.37	1 49 46.21	11.52	0.35	9 16 50.5	9 43 45.0	67.5	5.2	5.4
8	1 54 23.77	1 59 2.07	11.58	0.35	10 10 26.8	10 36 55.1	66.4	5.1	5.3
10	2 3 41.14	2 8 21.01	11.65	0.35	11 3 9.2	11 29 8.5	65.2	5.1	5.3
12	2 13 1.72	2 17 43.29	11.72	0.35	11 54 52.2	12 20 19.6	63.9	5.1	5.3
14	2 22 25.74	2 27 9.11	11.79	0.35	12 45 30.0	13 10 22.5	62.5	5.1	5.3
16	2 31 53.43	2 36 38.70	11.87	0.35	13 34 56.6	13 59 11.5	61.0	5.0	5.2
18	2 41 24.98	2 46 12.27	11.95	0.35	14 23 6.5	14 46 41.0	59.4	5.0	5.2
20	2 51 0.59	2 55 49.97	12.03	0.35	15 9 54.0	15 32 45.1	57.6	5.0	5.2
22	3 0 40.42	3 5 31.96	12.12	0.35	15 55 13.4	16 17 28.3	55.7	5.0	5.2
24	3 10 24.61	3 15 18.37	12.22	0.35	16 38 59.0	17 0 14.8	53.7	5.0	5.2
26	3 20 13.26	3 25 9.28	12.31	0.34	17 21 5.1	17 41 29.0	51.5	4.9	5.1
28	3 30 6.44	3 35 4.74	12.40	0.34	18 1 25.8	18 20 54.9	49.3	4.9	5.1
30	3 40 4.18	3 45 4.75	12.50	0.34	18 39 55.6	18 58 27.1	46.9	4.9	5.1
June 1	3 50 6.46	3 55 9.28	12.60	0.34	19 16 28.8	19 34 0.0	44.4	4.9	5.1
3	4 0 13.21	4 5 18.24	12.69	0.34	19 51 0.1	20 7 28.5	41.8	4.9	5.1
5	4 10 24.36	4 15 31.53	12.78	0.34	20 23 24.4	20 38 47.3	39.1	4.9	5.1
7	4 20 39.74	4 25 48.97	12.87	0.34	20 53 36.5	21 7 51.3	36.3	4.9	5.1
9	4 30 59.19	4 36 10.38	12.96	0.34	21 21 31.3	21 34 35.9	33.4	4.9	5.1
11	4 41 22.51	4 46 35.55	13.03	0.34	21 47 4.5	21 58 56.5	30.4	4.8	5.0
13	4 51 49.47	4 57 4.24	13.10	0.34	22 10 11.5	22 20 48.9	27.4	4.8	5.0
15	5 2 19.83	5 7 36.19	13.17	0.34	22 30 48.4	22 40 9.4	24.2	4.8	5.0
17	5 12 53.28	5 18 11.07	13.23	0.34	22 48 51.4	22 56 54.2	21.0	4.8	5.0

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
			+		North.	North.	+		
	h m s	h m s	s	s	° ' "	° ' "	"	"	"
June 19	5 23 29.50	5 28 48.53	13.28	0.34	23 4 17.3	23 11 0.4	17.6	4.8	5.0
21	5 34 8.13	5 39 28.23	13.33	0.34	23 17 3.2	23 22 25.2	14.3	4.8	5.0
23	5 44 48.79	5 50 9.77	13.36	0.34	23 27 6.3	23 31 6.0	10.9	4.8	5.0
25	5 55 31.10	6 0 52.73	13.39	0.34	23 34 24.3	23 37 0.9	7.4	4.8	5.0
27	6 6 14.60	6 11 36.66	13.42	0.34	23 38 55.7	23 40 8.6	4.0	4.8	5.0
29	6 16 58.85	6 22 21.10	13.43	0.34	23 40 39.4	23 40 28.1	0.4	4.8	5.0
July 1	6 27 43.36	6 33 5.57	13.43	0.34	23 39 34.6	23 37 59.0	3.1	4.8	5.0
3	6 38 27.67	6 43 49.59	13.42	0.34	23 35 41.2	23 32 41.4	6.6	4.8	5.0
5	6 49 11.27	6 54 32.66	13.40	0.34	23 28 59.5	23 24 35.8	10.2	4.8	5.0
7	6 59 53.70	7 5 14.34	13.37	0.34	23 19 30.4	23 13 43.4	13.6	4.8	5.0
9	7 10 34.52	7 15 54.18	13.33	0.34	23 7 15.0	23 0 5.4	17.0	4.8	5.0
11	7 21 13.28	7 26 31.77	13.28	0.34	22 52 14.9	22 43 43.9	20.4	4.7	4.9
13	7 31 49.60	7 37 6.73	13.23	0.34	22 34 32.6	22 24 41.4	23.8	4.7	4.9
15	7 42 23.11	7 47 38.71	13.17	0.34	22 14 10.7	22 3 0.9	27.1	4.7	4.9
17	* * *	7 52 53.48	*	*	* * *	21 51 12.3	*	*	*
19	7 58 7.38	8 3 20.38	13.06	0.34	21 38 45.4	21 25 40.6	31.9	4.7	4.9
21	8 8 32.46	8 13 43.59	12.98	0.34	21 11 58.4	20 57 39.3	35.0	4.7	4.9
23	8 18 53.73	8 24 2.87	12.90	0.34	20 42 43.7	20 27 12.4	38.0	4.7	4.9
25	8 29 10.99	8 34 18.06	12.82	0.34	20 11 5.7	19 54 24.2	41.0	4.8	5.0
27	8 39 24.06	8 44 28.98	12.73	0.34	19 37 8.6	19 19 19.5	43.8	4.8	5.0
29	8 49 32.80	8 54 35.51	12.64	0.34	19 0 57.5	18 42 3.2	46.6	4.8	5.0
31	8 59 37.10	9 4 37.57	12.54	0.34	18 22 37.3	18 2 40.5	49.2	4.8	5.0
Aug. 2	9 9 36.89	9 14 35.09	12.45	0.34	17 42 13.4	17 21 16.6	51.8	4.8	5.0
4	9 19 32.13	9 24 28.04	12.35	0.34	16 59 51.0	16 37 57.2	54.2	4.8	5.0
6	9 29 22.81	9 34 16.44	12.26	0.33	16 15 35.8	15 52 47.6	56.5	4.8	5.0
8	9 39 8.95	9 44 0.35	12.17	0.33	15 29 33.4	15 5 53.7	58.7	4.8	5.0
10	9 48 50.65	9 53 39.86	12.08	0.33	14 41 49.4	14 17 21.2	60.7	4.8	5.0
12	9 58 28.00	10 3 15.09	11.98	0.33	13 52 29.7	13 27 15.7	62.6	4.8	5.0
14	10 8 1.15	10 12 46.20	11.90	0.33	13 1 40.0	12 35 43.3	64.4	4.8	5.0
16	10 17 30.26	10 22 13.36	11.82	0.33	12 9 26.2	11 42 49.5	66.1	4.8	5.0
18	10 26 55.53	10 31 36.80	11.74	0.33	11 15 54.0	10 48 40.3	67.7	4.8	5.0
20	10 36 17.20	10 40 56.77	11.66	0.33	10 21 9.1	9 53 21.1	69.1	4.8	5.0
22	10 45 35.53	10 50 13.53	11.60	0.33	9 25 17.2	8 56 58.0	70.5	4.9	5.1
24	10 54 50.80	10 59 27.37	11.54	0.33	8 28 24.1	7 59 36.5	71.7	4.9	5.1
26	11 4 3.28	11 8 38.56	11.49	0.33	7 30 35.8	7 1 22.7	72.8	4.9	5.1
28	11 13 13.24	11 17 47.37	11.44	0.33	6 31 58.1	6 2 22.6	73.8	4.9	5.1
30	11 22 20.98	11 26 54.09	11.39	0.33	5 32 37.0	5 2 42.0	74.6	4.9	5.1
Sept. 1	11 31 26.77	11 35 59.03	11.35	0.33	4 32 38.3	4 2 26.7	75.3	4.9	5.1
3	11 40 30.93	11 45 2.49	11.32	0.33	3 32 8.0	3 1 42.7	75.9	4.9	5.1
5	11 49 33.77	11 54 4.80	11.30	0.33	2 31 11.7	2 0 35.7	76.4	5.0	5.2
7	11 58 35.63	12 3 6.29	11.28	0.33	1 29 55.5	0 59 11.7	76.8	5.0	5.2
9	12 7 36.82	12 12 7.27	11.27	0.33	0 28 25.1	South.	77.0	5.0	5.2
						0 2 23.5			

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	s	South. ° ' "	South. ° ' "	— "	"	"
Sept. 11	12 16 37.67	12 21 8.07	11.27	0.33	0 33 13.4	0 1 4.0	77.1	5.0	5.2
13	12 25 38.51	12 30 9.05	11.27	0.33	1 34 54.4	2 5 44.0	77.0	5.0	5.2
15	12 34 39.71	12 39 10.55	11.29	0.34	2 36 32.1	3 7 17.9	76.9	5.1	5.3
17	12 43 41.62	12 48 12.96	11.30	0.34	3 38 0.7	4 8 39.8	76.7	5.1	5.3
19	12 52 44.62	12 57 16.63	11.32	0.34	4 39 14.5	5 9 44.0	76.3	5.1	5.3
21	13 1 49.06	13 6 21.94	11.36	0.34	5 40 7.7	6 10 24.7	75.9	5.1	5.3
23	13 10 55.31	13 15 29.21	11.40	0.34	6 40 34.3	7 10 35.8	75.3	5.1	5.3
25	13 20 3.68	13 24 38.77	11.44	0.35	7 40 28.3	8 10 11.1	74.6	5.2	5.4
27	13 29 14.50	13 33 50.92	11.49	0.35	8 39 43.6	9 9 4.9	73.6	5.2	5.4
29	13 38 28.08	13 43 6.00	11.56	0.36	9 38 14.2	10 7 10.8	72.6	5.2	5.4
Oct. 1	13 47 44.72	13 52 24.26	11.63	0.36	10 35 53.9	11 4 22.7	71.5	5.2	5.4
3	13 57 4.68	14 1 46.00	11.70	0.37	11 32 36.5	12 0 34.4	70.3	5.3	5.5
5	14 6 28.24	14 11 11.44	11.78	0.37	12 28 15.7	12 55 39.5	68.9	5.3	5.5
7	14 15 55.64	14 20 40.84	11.87	0.37	13 22 45.0	13 49 31.6	67.3	5.3	5.5
9	14 25 27.08	14 30 14.38	11.96	0.37	14 15 58.3	14 42 4.4	65.7	5.4	5.6
11	14 35 2.76	14 39 52.24	12.05	0.37	15 7 49.1	15 33 11.6	63.9	5.4	5.6
13	14 44 42.86	14 49 34.64	12.14	0.37	15 58 11.2	16 22 47.0	62.0	5.4	5.6
15	14 54 27.58	14 59 21.72	12.23	0.37	16 46 58.2	17 10 44.1	60.0	5.4	5.6
17	15 4 17.07	15 9 13.63	12.33	0.38	17 34 3.9	17 56 56.8	57.8	5.5	5.7
19	15 14 11.43	15 19 10.48	12.44	0.38	18 19 22.1	18 41 18.9	55.5	5.5	5.7
21	15 24 10.77	15 29 12.31	12.54	0.39	19 2 46.5	19 23 44.1	53.1	5.5	5.7
23	15 34 15.10	15 39 19.14	12.64	0.39	19 44 11.0	20 4 6.4	50.5	5.6	5.8
25	15 44 24.41	15 49 30.92	12.75	0.40	20 23 29.5	20 42 19.6	47.8	5.6	5.8
27	15 54 38.65	15 59 47.58	12.85	0.41	21 0 36.0	21 18 17.9	45.0	5.7	5.9
29	16 4 57.70	16 10 8.98	12.94	0.41	21 35 24.8	21 51 55.7	42.0	5.7	5.9
31	16 15 21.40	16 20 34.94	13.03	0.41	22 7 50.0	22 23 7.2	39.0	5.7	5.9
Nov. 2	16 25 49.55	16 31 5.20	13.12	0.42	22 37 46.6	22 51 47.5	35.8	5.8	6.0
4	16 36 21.86	16 41 39.48	13.21	0.42	23 5 9.4	23 17 51.7	32.6	5.8	6.0
6	16 46 58.01	16 52 17.42	13.29	0.43	23 29 53.8	23 41 15.1	29.2	5.9	6.1
8	16 57 37.65	17 2 58.65	13.36	0.43	23 51 55.1	24 1 53.4	25.8	5.9	6.1
10	17 8 20.37	17 13 42.76	13.42	0.44	24 11 9.5	24 19 42.9	22.3	5.9	6.1
12	17 19 5.76	17 24 29.32	13.47	0.44	24 27 33.3	24 34 40.3	18.7	6.0	6.2
14	17 29 53.37	17 35 17.87	13.51	0.44	24 41 3.5	24 46 42.7	15.1	6.0	6.2
16	17 40 42.74	17 46 7.93	13.54	0.45	24 51 37.5	24 55 47.8	11.4	6.1	6.3
18	17 51 33.37	17 56 58.99	13.56	0.45	24 59 13.3	25 1 53.9	7.7	6.1	6.3
20	18 2 24.73	18 7 50.51	13.57	0.45	25 3 49.4	25 4 59.7	3.9	6.2	6.4
22	18 13 16.28	18 18 41.94	13.57	0.46	25 5 24.7	25 5 4.4	0.1	6.2	6.4
24	18 24 7.45	18 29 32.73	13.56	0.46	25 3 58.7	25 2 7.8	3.6	6.2	6.5
26	18 34 57.71	18 40 22.31	13.54	0.46	24 59 31.7	24 56 10.5	7.4	6.2	6.5
28	18 45 46.47	18 51 10.12	13.50	0.47	24 52 4.4	24 47 13.6	11.2	6.3	6.6
30	18 56 33.18	19 1 55.59	13.45	0.47	24 41 38.3	24 35 18.8	14.9	6.4	6.7
Dec. 2	19 7 17.27	19 12 38.17	13.39	0.48	24 28 15.4	24 20 28.3	18.6	6.4	6.7

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in 1 Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+ s	s	South. ° ' "	South. ° ' "	+ "	"	"
Dec. 4	19 17 58.21	19 23 17.32	13.31	0.48	24 11 57.9	24 2 44.7	22.1	6.5	6.8
6	19 28 35.45	19 33 52.55	13.23	0.48	23 52 49.1	23 42 11.4	25.6	6.5	6.8
8	19 39 8.55	19 44 23.41	13.14	0.48	23 30 52.3	23 18 52.1	29.1	6.6	6.9
10	19 49 37.08	19 54 49.51	13.04	0.49	23 6 11.4	22 52 50.9	32.5	6.7	7.0
12	20 0 0.67	20 5 10.52	12.94	0.49	22 38 50.9	22 24 12.1	35.8	6.7	7.0
14	20 10 19.01	20 15 26.12	12.83	0.49	22 8 55.1	21 53 0.5	39.0	6.8	7.1
16	20 20 31.82	20 25 36.08	12.71	0.49	21 36 29.0	21 19 21.2	42.0	6.9	7.2
18	20 30 38.88	20 35 40.19	12.59	0.49	21 1 37.9	20 43 19.7	45.0	7.0	7.3
20	20 40 40.00	20 45 38.29	12.46	0.50	20 24 27.3	20 5 1.5	47.9	7.1	7.4
22	20 50 35.04	20 55 30.26	12.34	0.50	19 45 2.8	19 24 32.2	50.6	7.1	7.4
24	21 0 23.92	21 5 16.02	12.21	0.50	19 3 30.3	18 41 57.9	53.2	7.2	7.5
26	21 10 6.55	21 14 55.52	12.08	0.51	18 19 55.8	17 57 24.8	55.7	7.3	7.6
28	21 19 42.92	21 24 28.74	11.95	0.51	17 34 25.7	17 10 59.2	58.0	7.4	7.7
30	21 29 12.98	21 33 55.65	11.82	0.52	16 47 6.3	16 22 47.7	60.2	7.5	7.8
32	21 38 36.75		11.69	0.52	15 58 4.3		62.2	7.5	7.8

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Merid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
May	h m s	h m s	+	+	South.	South.	+	+	+
	6 23 6 12.97	23 9 0.81	7.00	0.19	7 31 43.2	7 14 50.1	42.3	2.9	5.6
	8 23 11 48.36	23 14 35.63	6.98	0.19	6 57 54.2	6 40 55.7	42.4	2.9	5.6
	10 23 17 22.62	23 20 9.33	6.95	0.20	6 23 54.9	6 6 51.9	42.6	3.0	5.7
	12 23 22 55.77	23 25 41.95	6.93	0.20	5 49 46.9	5 32 40.1	42.7	3.0	5.7
	14 23 28 27.87	23 31 13.55	6.91	0.20	5 15 31.5	4 58 21.3	42.9	3.0	5.8
	16 23 33 58.98	23 36 44.17	6.89	0.20	4 41 9.9	4 23 57.1	43.0	3.0	5.8
	18 23 39 29.13	23 42 13.87	6.87	0.21	4 6 43.3	3 49 28.8	43.1	3.1	5.9
	20 23 44 58.39	23 47 42.70	6.85	0.21	3 32 13.5	3 14 57.6	43.2	3.1	5.9
	22 23 50 26.81	23 53 10.72	6.83	0.21	2 57 41.4	2 40 24.9	43.2	3.1	5.9
	24 23 55 54.43	23 58 37.95	6.82	0.21	2 23 8.5	2 5 52.3	43.2	3.1	6.0
	26 0 1 21.27	0 4 4.40	6.80	0.21	1 48 36.5	1 31 21.1	43.2	3.1	6.0
	28 0 6 47.34	0 9 30.09	6.79	0.22	1 14 6.6	0 56 52.9	43.1	3.1	6.0
	30 0 12 12.65	0 14 55.02	6.77	0.22	0 39 40.4	0 22 29.4	43.0	3.2	6.1
						North.			
	June 1 0 17 37.21	0 20 19.21	6.75	0.22	0 5 19.7	0 11 48.2	42.9	3.2	6.1
					North.				
	3 0 23 1.02	0 25 42.65	6.74	0.22	0 28 54.1	0 45 58.1	42.7	3.2	6.1
	5 0 28 24.09	0 31 5.34	6.72	0.22	1 2 59.7	1 19 59.1	42.5	3.2	6.2
	7 0 33 46.42	0 36 27.32	6.70	0.22	1 36 56.2	1 53 50.4	42.3	3.2	6.2
	9 0 39 8.04	0 41 48.60	6.69	0.22	2 10 41.8	2 27 30.4	42.1	3.3	6.3
	11 0 44 28.98	0 47 9.20	6.68	0.22	2 44 15.6	3 0 57.6	41.8	3.3	6.3
	13 0 49 49.26	0 52 29.16	6.67	0.23	3 17 36.1	3 34 11.1	41.5	3.3	6.4
	15 0 55 8.91	0 57 48.52	6.66	0.23	3 50 42.4	4 7 9.9	41.2	3.4	6.5
	17 1 0 27.97	1 3 7.28	6.64	0.23	4 23 33.3	4 39 52.5	40.9	3.4	6.6
	19 1 5 46.45	1 8 25.48	6.63	0.23	4 56 7.5	5 12 18.2	40.5	3.4	6.6
	21 1 11 4.37	1 13 43.12	6.62	0.23	5 28 24.2	5 44 25.6	40.2	3.5	6.7
July									
	23 1 16 21.74	1 19 0.22	6.61	0.23	6 0 22.1	6 16 13.4	39.8	3.5	6.7
	25 1 21 38.54	1 24 16.71	6.60	0.23	6 31 59.6	6 47 40.4	39.3	3.5	6.8
	27 1 26 54.72	1 29 32.56	6.58	0.24	7 3 15.6	7 18 45.3	38.9	3.6	6.9
	29 1 32 10.23	1 34 47.73	6.57	0.24	7 34 9.1	7 49 26.8	38.4	3.6	6.9
	1 1 37 25.05	1 40 2.18	6.55	0.24	8 4 38.6	8 19 44.2	37.9	3.6	7.0
	3 1 42 39.12	1 45 15.87	6.54	0.24	8 34 43.3	8 49 36.1	37.3	3.6	7.0
	5 1 47 52.41	1 50 28.75	6.52	0.25	9 4 22.2	9 19 1.6	36.8	3.7	7.1
	7 1 53 4.87	1 55 40.78	6.50	0.25	9 33 34.2	9 47 59.9	36.2	3.7	7.1
	9 1 58 16.48	2 0 51.96	6.48	0.25	10 2 18.3	10 16 29.8	35.6	3.7	7.2
	11 2 3 27.20	2 6 2.22	6.46	0.25	10 30 34.1	10 44 30.8	35.0	3.7	7.2
	13 2 8 37.01	2 11 11.55	6.44	0.26	10 58 20.3	11 12 2.2	34.4	3.8	7.3
	15 2 13 45.86	2 16 19.92	6.42	0.26	11 25 36.5	11 39 3.2	33.8	3.8	7.3
	17 2 18 53.74	2 21 27.30	6.40	0.26	11 52 22.2	12 5 33.3	33.1	3.8	7.4
	19 2 24 0.60	2 26 33.62	6.38	0.27	12 18 36.4	12 31 31.6	32.5	3.9	7.5
	21 2 29 6.36	2 31 38.81	6.36	0.27	12 44 18.6	12 56 57.4	31.8	3.9	7.6
	23 2 34 10.95	2 36 42.77	6.34	0.27	13 9 27.9	13 21 49.9	31.1	4.0	7.7
	25 2 39 14.26	2 41 45.38	6.31	0.27	13 34 3.6	13 46 8.7	30.4	4.0	7.8
	27 2 44 16.13	2 46 46.50	6.28	0.28	13 58 5.2	14 9 53.1	29.7	4.0	7.8

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	s	North. ° ' "	North. ° ' "	+	"	"
July 29	2 49 16.46	2 51 45.98	6.24	0.28	14 21 32.2	14 33 2.4	28.9	4.1	7.9
31	2 54 15.08	2 56 43.72	6.20	0.28	14 44 23.8	14 55 36.4	28.2	4.1	8.0
Aug. 2	2 59 11.87	3 1 39.55	6.16	0.28	15 6 40.0	15 17 34.7	27.5	4.2	8.1
4	3 4 6.73	3 6 33.39	6.12	0.29	15 28 20.3	15 38 56.9	26.7	4.2	8.2
6	3 8 59.52	3 11 25.08	6.08	0.29	15 49 24.4	15 59 42.9	26.0	4.2	8.2
8	3 13 50.06	3 16 14.47	6.03	0.30	16 9 52.3	16 19 52.6	25.2	4.3	8.3
10	3 18 38.29	3 21 1.49	5.98	0.30	16 29 43.9	16 39 26.1	24.5	4.3	8.4
12	3 23 24.05	3 25 45.97	5.93	0.30	16 48 59.3	16 58 23.4	23.7	4.4	8.5
14	3 28 7.22	3 30 27.78	5.87	0.31	17 7 38.5	17 16 44.5	22.9	4.5	8.6
16	3 32 47.65	3 35 6.80	5.81	0.31	17 25 41.7	17 34 30.0	22.2	4.5	8.7
18	3 37 25.21	3 39 42.84	5.75	0.31	17 43 9.2	17 51 39.4	21.5	4.5	8.8
20	3 41 59.66	3 44 15.66	5.68	0.32	18 0 0.8	18 8 13.2	20.7	4.6	8.9
22	3 46 30.80	3 48 45.04	5.61	0.32	18 16 16.9	18 24 11.7	20.0	4.6	9.0
24	3 50 58.35	3 53 10.70	5.54	0.32	18 31 57.7	18 39 35.1	19.2	4.7	9.1
26	3 55 22.05	3 57 32.39	5.45	0.33	18 47 3.8	18 54 23.9	18.5	4.7	9.2
28	3 59 41.67	4 1 49.83	5.36	0.33	19 1 35.6	19 8 38.8	17.8	4.8	9.3
30	4 3 56.89	4 6 2.77	5.27	0.34	19 15 33.6	19 22 20.0	17.1	4.9	9.5
Sept. 1	4 8 7.44	4 10 10.91	5.17	0.35	19 28 58.2	19 35 28.4	16.4	5.0	9.6
3	4 12 13.12	4 14 14.02	5.06	0.35	19 41 50.5	19 48 4.8	15.8	5.0	9.7
5	4 16 13.59	4 18 11.82	4.95	0.36	19 54 11.1	20 0 9.9	15.1	5.1	9.9
7	4 20 8.62	4 22 4.00	4.84	0.36	20 6 1.1	20 11 44.8	14.5	5.2	10.0
9	4 23 57.93	4 25 50.33	4.72	0.37	20 17 21.2	20 22 50.4	13.9	5.2	10.1
11	4 27 41.23	4 29 30.57	4.59	0.37	20 28 12.7	20 33 28.0	13.3	5.3	10.3
13	4 31 18.28	4 33 4.36	4.45	0.38	20 38 36.7	20 43 38.7	12.7	5.4	10.4
15	4 34 48.78	4 36 31.43	4.31	0.38	20 48 34.1	20 53 23.2	12.2	5.5	10.6
17	4 38 12.32	4 39 51.39	4.17	0.39	20 58 6.1	21 2 43.0	11.7	5.5	10.7
19	4 41 28.53	4 43 3.76	4.01	0.40	21 7 14.1	21 11 39.4	11.2	5.6	10.8
21	4 44 36.99	4 46 8.12	3.84	0.41	21 15 59.1	21 20 13.4	10.7	5.7	11.0
23	4 47 37.19	4 49 4.09	3.66	0.42	21 24 22.5	21 28 26.4	10.3	5.8	11.2
25	4 50 28.73	4 51 51.12	3.48	0.43	21 32 25.6	21 36 19.8	9.9	5.9	11.4
27	4 53 11.17	4 54 28.78	3.28	0.43	21 40 9.6	21 43 54.9	9.5	6.0	11.6
29	4 55 43.98	4 56 56.67	3.08	0.44	21 47 35.8	21 51 12.6	9.1	6.1	11.7
Oct. 1	4 58 6.77	4 59 14.27	2.86	0.45	21 54 45.6	21 58 14.6	8.8	6.2	11.9
3	5 0 19.10	5 1 21.16	2.64	0.45	22 1 40.0	22 5 2.0	8.5	6.3	12.1
5	5 2 20.46	5 3 16.92	2.41	0.46	22 8 20.6	22 11 36.1	8.2	6.4	12.3
7	5 4 10.48	5 5 1.12	2.17	0.46	22 14 48.6	22 17 58.2	8.0	6.4	12.4
9	5 5 48.77	5 6 33.37	1.92	0.47	22 21 5.0	22 24 9.2	7.7	6.5	12.6
11	5 7 14.90	5 7 53.30	1.67	0.48	22 27 10.8	22 30 10.0	7.5	6.6	12.8
13	5 8 28.47	5 9 0.40	1.40	0.49	22 33 7.0	22 36 1.5	7.3	6.7	13.0
15	5 9 29.01	5 9 54.23	1.12	0.50	22 38 54.0	22 41 44.3	7.1	6.8	13.2
17	5 10 16.02	5 10 34.31	0.83	0.51	22 44 32.5	22 47 18.9	7.0	6.9	13.4
19	5 10 49.02	5 11 0.15	0.54	0.52	22 50 3.2	22 52 45.6	6.8	7.0	13.6
21	5 11 7.61	5 11 11.34	0.23	0.52	22 55 26.0	22 58 4.3	6.6	7.1	13.8

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	h m s	h m s	"	"	North. ° ' "	North. ° ' "	+	"	"
Oct. 23	5 11 11.36	5 11 7.55	0.08	0.53	23 0 40.6	23 3 14.7	6.5	7.2	14.0
25	5 10 59.93	5 10 48.47	0.40	0.53	23 5 46.4	23 8 16.0	6.3	7.3	14.2
27	5 10 33.12	5 10 13.87	0.72	0.54	23 10 43.1	23 13 7.6	6.1	7.4	14.4
29	5 9 50.74	5 9 23.68	1.05	0.54	23 15 29.2	23 17 47.8	5.8	7.5	14.6
31	5 8 52.75	5 8 17.96	1.37	0.55	23 20 3.2	23 22 15.2	5.6	7.6	14.8
Nov. 2	5 7 39.34	5 6 56.88	1.69	0.56	23 24 23.7	23 26 28.4	5.3	7.8	15.0
4	5 6 10.69	5 5 20.78	2.00	0.57	23 28 28.9	23 30 25.1	4.9	7.9	15.2
6	5 4 27.23	5 3 30.13	2.31	0.57	23 32 16.8	23 34 3.4	4.5	8.0	15.4
8	5 2 29.53	5 1 25.54	2.60	0.58	23 35 44.9	23 37 20.8	4.1	8.0	15.5
10	5 0 18.25	4 59 7.74	2.87	0.59	23 38 50.8	23 40 14.9	3.6	8.1	15.6
12	4 57 54.11	4 56 37.53	3.13	0.59	23 41 32.5	23 42 43.7	3.1	8.1	15.7
14	4 55 18.04	4 53 55.82	3.37	0.60	23 43 47.9	23 44 45.2	2.5	8.2	15.8
16	4 52 31.05	4 51 3.81	3.58	0.60	23 45 35.0	23 46 17.3	1.9	8.2	15.9
18	4 49 34.30	4 48 2.73	3.77	0.60	23 46 52.0	23 47 18.7	1.3	8.2	16.0
20	4 46 29.24	4 44 54.03	3.93	0.61	23 47 37.3	23 47 47.8	0.6	8.3	16.0
22	4 43 17.36	4 41 39.37	4.06	0.61	23 47 50.1	23 47 44.2	0.1	8.3	16.1
24	4 40 0.30	4 38 20.41	4.15	0.61	23 47 30.1	23 47 8.0	0.8	8.3	16.1
26	4 36 39.87	4 34 58.93	4.20	0.61	23 46 37.9	23 46 0.0	1.4	8.3	16.0
28	4 33 17.85	4 31 36.86	4.21	0.60	23 45 14.7	23 44 22.2	2.0	8.2	16.0
30	4 29 56.19	4 28 16.06	4.18	0.60	23 43 22.7	23 42 16.5	2.6	8.2	15.9
Dec. 2	4 26 36.73	4 24 58.42	4.12	0.60	23 41 4.5	23 39 46.6	3.1	8.2	15.8
4	4 23 21.32	4 21 45.66	4.02	0.59	23 38 23.6	23 36 56.0	3.5	8.1	15.7
6	4 20 11.68	4 18 39.50	3.88	0.59	23 35 24.2	23 33 48.8	3.9	8.1	15.6
8	4 17 9.31	4 15 41.30	3.71	0.59	23 32 10.6	23 30 29.9	4.1	8.0	15.4
10	4 14 15.57	4 12 52.28	3.52	0.58	23 28 47.5	23 27 3.8	4.3	7.9	15.2
12	4 11 31.59	4 10 13.57	3.31	0.57	23 25 19.5	23 23 35.1	4.4	7.8	15.0
14	4 8 58.38	4 7 46.12	3.07	0.56	23 21 51.2	23 20 8.2	4.3	7.7	14.8
16	4 6 36.84	4 5 30.68	2.82	0.55	23 18 26.7	23 16 47.4	4.2	7.6	14.6
18	4 4 27.72	4 3 28.01	2.56	0.54	23 15 10.9	23 13 37.4	4.0	7.5	14.4
20	4 2 31.60	4 1 38.58	2.28	0.53	23 12 7.4	23 10 41.4	3.7	7.4	14.2
22	4 0 48.96	4 0 2.80	2.00	0.53	23 9 19.7	23 8 2.8	3.3	7.2	13.9
24	3 59 20.15	3 58 41.01	1.70	0.52	23 6 51.1	23 5 44.9	2.9	7.1	13.7
26	3 58 5.39	3 57 33.36	1.41	0.51	23 4 44.5	23 3 50.2	2.4	6.9	13.4
28	3 57 4.86	3 56 39.93	1.11	0.50	23 3 2.2	23 2 20.9	1.9	6.8	13.1
30	3 56 18.59	3 56 0.76	0.82	0.49	23 1 46.4	23 1 18.8	1.3	6.7	12.9
32	3 55 46.46		0.52	0.48	23 0 58.3		0.7	6.6	12.6

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	h m s	h m s	+	s	South. ° ' "	South. ° ' "	— "	"	"
Jan. 10	15 20 00.02	15 20 38.80	1.62	1.18	17 21 3.3	17 23 24.7	6.0	15.8	1.5
12	15 21 17.15	15 21 55.08	1.59	1.19	17 25 43.8	17 28 0.7	5.7	15.9	1.5
14	15 22 32.57	15 23 9.62	1.55	1.20	17 30 15.3	17 32 27.7	5.5	15.9	1.5
16	15 23 46.22	15 24 22.37	1.52	1.20	17 34 37.8	17 36 45.6	5.4	15.9	1.5
18	15 24 58.06	15 25 33.27	1.48	1.21	17 38 51.1	17 40 54.3	5.2	16.0	1.5
20	15 26 8.01	15 26 42.27	1.44	1.22	17 42 55.3	17 44 54.0	5.0	16.1	1.5
22	15 27 16.04	15 27 49.31	1.40	1.23	17 46 50.4	17 48 44.4	4.8	16.2	1.5
24	15 28 22.08	15 28 54.34	1.35	1.24	17 50 36.2	17 52 25.6	4.6	16.3	1.5
26	15 29 26.08	15 29 57.29	1.31	1.25	17 54 12.7	17 55 57.4	4.4	16.4	1.5
28	15 30 27.97	15 30 58.10	1.27	1.25	17 57 39.8	17 59 19.8	4.2	16.5	1.5
30	15 31 27.68	15 31 56.70	1.22	1.26	18 0 57.4	18 2 32.6	4.0	16.6	1.5
Feb. 1	15 32 25.15	15 32 53.03	1.17	1.27	18 4 5.5	18 5 36.0	3.8	16.7	1.5
3	15 33 20.32	15 33 47.01	1.12	1.28	18 7 4.1	18 8 29.8	3.6	16.8	1.6
5	15 34 13.10	15 34 38.59	1.07	1.28	18 9 53.1	18 11 13.9	3.4	16.9	1.6
7	15 35 3.46	15 35 27.70	1.02	1.29	18 12 32.4	18 13 48.3	3.2	17.0	1.6
9	15 35 51.31	15 36 14.29	0.97	1.29	18 15 1.8	18 16 12.9	3.0	17.1	1.6
11	15 36 36.63	15 36 58.31	0.92	1.30	18 17 21.6	18 18 27.8	2.8	17.2	1.6
13	15 37 19.34	15 37 39.72	0.86	1.30	18 19 31.5	18 20 32.8	2.6	17.2	1.6
15	15 37 59.42	15 38 18.45	0.81	1.31	18 21 31.7	18 22 28.1	2.4	17.3	1.6
17	15 38 36.80	15 38 54.47	0.75	1.32	18 23 22.0	18 24 13.5	2.2	17.4	1.6
19	15 39 11.45	15 39 27.73	0.69	1.33	18 25 2.5	18 25 49.0	2.0	17.6	1.6
21	15 39 43.32	15 39 58.21	0.64	1.34	18 26 33.1	18 27 14.8	1.8	17.7	1.6
23	15 40 12.38	15 40 25.84	0.58	1.34	18 27 53.9	18 28 30.6	1.6	17.8	1.7
25	15 40 38.58	15 40 50.60	0.52	1.35	18 29 4.8	18 29 36.5	1.4	18.0	1.7
27	15 41 1.89	15 41 12.43	0.45	1.36	18 30 5.7	18 30 32.4	1.2	18.1	1.7
29	15 41 22.24	15 41 31.31	0.39	1.38	18 30 56.6	18 31 18.4	1.0	18.2	1.7
Mar. 2	15 41 39.62	15 41 47.18	0.33	1.39	18 31 37.6	18 31 54.3	0.7	18.3	1.7
4	15 41 53.97	15 42 0.00	0.27	1.40	18 32 8.6	18 32 20.4	0.5	18.4	1.7
6	15 42 5.27	15 42 9.77	0.20	1.41	18 32 29.6	18 32 36.4	0.3	18.5	1.7
8	15 42 13.49	15 42 16.45	0.14	1.42	18 32 40.7	18 32 42.5	0.1	18.6	1.7
10	15 42 18.64	15 42 20.06	0.08	1.42	18 32 41.7	18 32 38.5	0.1	18.7	1.7
12	15 42 20.71	15 42 20.58	0.01	1.43	18 32 32.8	18 32 24.6	0.3	18.8	1.7
14	15 42 19.69	15 42 18.03	0.05	1.44	18 32 14.0	18 32 0.9	0.5	18.9	1.8
16	15 42 15.60	15 42 12.41	0.12	1.45	18 31 45.5	18 31 27.6	0.7	19.1	1.8
18	15 42 8.45	15 42 3.73	0.18	1.46	18 31 7.2	18 30 44.5	0.9	19.2	1.8
20	15 41 58.26	15 41 52.03	0.24	1.46	18 30 19.3	18 29 51.7	1.1	19.3	1.8
22	15 41 45.05	15 41 37.32	0.31	1.47	18 29 21.6	18 28 49.2	1.3	19.4	1.8
24	15 41 28.84	15 41 19.62	0.37	1.47	18 28 14.4	18 27 37.2	1.5	19.5	1.8
26	15 41 9.66	15 40 58.96	0.43	1.48	18 26 57.7	18 26 15.8	1.7	19.7	1.8
28	15 40 47.54	15 40 35.39	0.49	1.49	18 25 31.7	18 24 45.2	1.9	19.8	1.8
30	15 40 22.52	15 40 8.93	0.55	1.50	18 23 55.4	18 23 5.3	2.1	19.8	1.8
Apr. 1	15 39 54.64	15 39 39.64	0.61	1.51	18 22 12.0	18 21 16.5	2.3	19.9	1.8

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	—	s	South. ° ' "	South. ° ' "	+	"	"
Apr. 3	15 39 23.96	15 39 7.60	0.67	1.51	18 20 18.7	18 19 18.6	2.5	20.0	1.9
5	15 38 50.56	15 38 32.87	0.72	1.52	18 18 16.5	18 17 12.2	2.6	20.1	1.9
7	15 38 14.53	15 37 55.55	0.78	1.52	18 16 5.8	18 14 57.3	2.8	20.2	1.9
9	15 37 35.95	15 37 15.74	0.83	1.53	18 13 46.7	18 12 34.2	3.0	20.3	1.9
11	15 36 54.93	15 36 33.54	0.88	1.54	18 11 19.7	18 10 3.2	3.2	20.4	1.9
13	15 36 11.58	15 35 49.06	0.93	1.55	18 8 44.9	18 7 24.6	3.3	20.5	1.9
15	15 35 26.00	15 35 2.42	0.97	1.55	18 6 2.6	18 4 38.8	3.5	20.5	1.9
17	15 34 38.33	15 34 13.74	1.01	1.56	18 3 13.3	18 1 46.1	3.6	20.6	1.9
19	15 33 48.68	15 33 23.15	1.05	1.56	18 0 17.3	17 58 46.8	3.7	20.7	1.9
21	15 32 57.18	15 32 30.78	1.09	1.57	17 57 14.8	17 55 41.3	3.9	20.8	1.9
23	15 32 3.96	15 31 36.75	1.12	1.57	17 54 6.4	17 52 30.0	4.0	20.8	1.9
25	15 31 9.16	15 30 41.21	1.16	1.58	17 50 52.4	17 49 13.4	4.1	20.9	1.9
27	15 30 12.91	15 29 44.29	1.19	1.58	17 47 33.2	17 45 51.8	4.2	20.9	1.9
29	15 29 15.36	15 28 46.14	1.21	1.58	17 44 9.4	17 42 25.8	4.3	21.0	1.9
May 1	15 28 16.66	15 27 46.93	1.23	1.58	17 40 41.3	17 38 55.9	4.4	21.0	1.9
3	15 27 16.98	15 26 46.83	1.25	1.59	17 37 9.6	17 35 22.6	4.4	21.0	2.0
5	15 26 16.50	15 25 46.00	1.27	1.59	17 33 34.8	17 31 46.5	4.5	21.0	2.0
7	15 25 15.37	15 24 44.62	1.28	1.59	17 29 57.6	17 28 8.3	4.5	21.0	2.0
9	15 24 13.79	15 23 42.89	1.29	1.59	17 26 18.6	17 24 28.6	4.6	21.0	2.0
11	15 23 11.94	15 22 40.97	1.29	1.58	17 22 38.4	17 20 48.0	4.6	21.1	2.0
13	15 22 10.00	15 21 39.05	1.29	1.58	17 18 57.6	17 17 7.2	4.6	21.1	2.0
15	15 21 8.13	15 20 37.28	1.29	1.58	17 15 16.9	17 13 26.7	4.6	21.0	2.0
17	15 20 6.52	15 19 35.85	1.28	1.58	17 11 36.8	17 9 47.2	4.6	21.0	2.0
19	15 19 5.31	15 18 34.90	1.27	1.58	17 7 58.0	17 6 9.3	4.5	21.0	2.0
21	15 18 4.66	15 17 34.60	1.26	1.58	17 4 21.2	17 2 33.7	4.5	21.0	2.0
23	15 17 4.73	15 16 35.09	1.24	1.58	17 0 46.9	16 59 1.0	4.4	21.0	2.0
25	15 16 5.68	15 15 36.53	1.22	1.58	16 57 15.9	16 55 31.8	4.4	21.0	1.9
27	15 15 7.66	15 14 39.08	1.20	1.58	16 53 48.8	16 52 6.9	4.3	21.0	1.9
29	15 14 10.81	15 13 42.87	1.17	1.58	16 50 26.1	16 48 46.6	4.2	21.0	1.9
31	15 13 15.29	15 12 48.07	1.14	1.57	16 47 8.5	16 45 31.9	4.1	20.9	1.9
June 2	15 12 21.24	15 11 54.82	1.11	1.57	16 43 56.7	16 42 23.1	3.9	20.9	1.9
4	15 11 28.81	15 11 3.25	1.07	1.56	16 40 51.1	16 39 20.9	3.8	20.8	1.9
6	15 10 38.14	15 10 13.51	1.04	1.56	16 37 52.4	16 36 25.8	3.7	20.8	1.9
8	15 9 49.37	15 9 25.73	1.00	1.55	16 35 1.2	16 33 38.7	3.5	20.7	1.9
10	15 9 2.61	15 8 40.01	0.95	1.55	16 32 18.2	16 30 59.8	3.3	20.6	1.9
12	15 8 17.96	15 7 56.45	0.91	1.54	16 29 43.6	16 28 29.7	3.1	20.5	1.9
14	15 7 35.51	15 7 15.15	0.86	1.54	16 27 18.0	16 26 8.7	2.9	20.5	1.9
16	15 6 55.37	15 6 36.18	0.81	1.53	16 25 1.8	16 23 57.3	2.7	20.4	1.9
18	15 6 17.60	15 5 59.63	0.76	1.53	16 22 55.3	16 21 55.9	2.5	20.3	1.9
20	15 5 42.29	15 5 25.57	0.71	1.52	16 20 59.0	16 20 4.8	2.3	20.2	1.9
22	15 5 9.48	15 4 54.05	0.66	1.51	16 19 13.2	16 18 24.3	2.1	20.1	1.9
24	15 4 39.26	15 4 25.13	0.60	1.50	16 17 38.2	16 16 54.8	1.9	20.0	1.9
26	15 4 11.67	15 3 58.88	0.55	1.49	16 16 14.1	16 15 36.3	1.6	19.9	1.9

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	—	s	South. ° ' "	South. ° ' "	+	"	"
June 28	15 3 46.77	15 3 35.35	0.49	1.48	16 15 1.3	16 14 29.2	1.4	19.8	1.8
30	15 3 24.62	15 3 14.59	0.43	1.48	16 14 0.0	16 13 33.7	1.1	19.8	1.8
July 1	15 3 5.25	15 2 56.63	0.37	1.47	16 13 10.4	16 12 50.1	0.9	19.7	1.8
4	15 2 48.73	15 2 41.53	0.31	1.46	16 12 32.8	16 12 18.5	0.7	19.6	1.8
6	15 2 35.06	15 2 29.30	0.25	1.46	16 12 7.2	16 11 58.9	0.4	19.5	1.8
8	15 2 24.26	15 2 19.95	0.19	1.45	16 11 53.7	16 11 51.5	0.2	19.4	1.8
10	15 2 16.37	15 2 13.51	0.13	1.44	16 11 52.4	16 11 56.3	0.1	19.3	1.8
12	15 2 11.38	15 2 9.97	0.07	1.43	16 12 3.2	16 12 13.1	0.4	19.2	1.8
14	15 2 9.28	15 2 9.32	0.01	1.42	16 12 26.1	16 12 42.1	0.6	19.0	1.8
16	15 2 10.08	15 2 11.56	0.05	1.42	16 13 1.2	16 13 23.2	0.9	18.9	1.8
18	15 2 13.76	15 2 16.67	0.11	1.41	16 13 48.2	16 14 16.2	1.1	18.8	1.7
20	15 2 20.30	15 2 24.64	0.17	1.40	16 14 47.2	16 15 21.1	1.4	18.6	1.7
22	15 2 29.69	15 2 35.45	0.23	1.39	16 15 58.0	16 16 37.8	1.6	18.5	1.7
24	15 2 41.92	15 2 49.09	0.28	1.38	16 17 20.5	16 18 6.1	1.8	18.5	1.7
26	15 2 56.97	15 3 5.55	0.34	1.37	16 18 54.5	16 19 45.8	2.1	18.4	1.7
28	15 3 14.84	15 3 24.82	0.40	1.36	16 20 40.0	16 21 37.0	2.3	18.3	1.7
30	15 3 35.50	15 3 46.88	0.46	1.36	16 22 36.8	16 23 39.3	2.5	18.2	1.7
Aug. 1	15 3 58.94	15 4 11.69	0.52	1.35	16 24 44.6	16 25 52.7	2.8	18.1	1.7
3	15 4 25.13	15 4 39.24	0.57	1.34	16 27 3.4	16 28 16.8	3.0	17.9	1.7
5	15 4 54.03	15 5 9.48	0.63	1.33	16 29 32.9	16 30 51.5	3.2	17.8	1.7
7	15 5 25.61	15 5 42.40	0.69	1.33	16 32 12.7	16 33 36.4	3.4	17.7	1.6
9	15 5 59.84	15 6 17.93	0.74	1.33	16 35 2.5	16 36 31.2	3.6	17.6	1.6
11	15 6 36.67	15 6 56.05	0.79	1.32	16 38 2.3	16 39 35.8	3.8	17.5	1.6
13	15 7 16.06	15 7 36.69	0.85	1.31	16 41 11.7	16 42 49.9	4.0	17.4	1.6
15	15 7 57.95	15 8 19.81	0.90	1.30	16 44 30.4	16 46 13.1	4.2	17.3	1.6
17	15 8 42.29	15 9 5.38	0.95	1.30	16 47 58.1	16 49 45.3	4.4	17.2	1.6
19	15 9 29.07	15 9 53.36	1.00	1.29	16 51 34.5	16 53 25.9	4.6	17.2	1.6
21	15 10 18.24	15 10 43.71	1.05	1.29	16 55 19.3	16 57 14.7	4.8	17.1	1.6
23	15 11 9.76	15 11 36.39	1.10	1.28	16 59 12.1	17 1 11.4	4.9	17.0	1.6
25	15 12 3.60	15 12 31.37	1.15	1.28	17 3 12.7	17 5 15.8	5.1	16.9	1.6
27	15 12 59.71	15 13 28.60	1.19	1.27	17 7 20.8	17 9 27.6	5.2	16.8	1.6
29	15 13 58.05	15 14 28.05	1.24	1.26	17 11 36.2	17 13 46.5	5.4	16.7	1.5
31	15 14 58.59	15 15 29.67	1.28	1.25	17 15 58.5	17 18 12.1	5.5	16.6	1.5
Sept. 2	15 16 1.29	15 16 33.44	1.33	1.25	17 20 27.3	17 22 44.0	5.7	16.5	1.5
4	15 17 6.10	15 17 39.29	1.37	1.24	17 25 2.3	17 27 22.0	5.8	16.4	1.5
6	15 18 12.98	15 18 47.17	1.41	1.23	17 29 43.2	17 32 5.7	5.9	16.3	1.5
8	15 19 21.86	15 19 57.03	1.46	1.23	17 34 29.7	17 36 54.9	6.0	16.2	1.5
10	15 20 32.69	15 21 8.86	1.50	1.23	17 39 21.4	17 41 49.1	6.1	16.1	1.5

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
Jan.	h m s	h m s	+	s	South.		—	"	"
					° ' "	° ' "			
1	13 8 18.37	13 8 28.38	0.42	0.56	4 38 4.9	4 38 49.0	1.9	7.8	0.9
3	13 8 38.03	13 8 47.30	0.39	0.56	4 39 30.8	4 40 10.2	1.7	7.8	0.9
5	13 8 56.21	13 9 4.74	0.36	0.56	4 40 47.2	4 41 21.8	1.5	7.8	0.9
7	13 9 12.89	13 9 20.66	0.33	0.57	4 41 54.1	4 42 24.0	1.3	7.9	0.9
9	13 9 28.05	13 9 35.06	0.30	0.57	4 42 51.4	4 43 16.4	1.1	7.9	0.9
11	13 9 41.68	13 9 47.92	0.27	0.57	4 43 39.0	4 43 59.2	0.9	7.9	0.9
13	13 9 53.76	13 9 59.21	0.24	0.57	4 44 17.0	4 44 32.3	0.7	7.9	0.9
15	13 10 4.27	13 10 8.94	0.20	0.57	4 44 45.2	4 44 55.7	0.5	8.0	0.9
17	13 10 13.22	13 10 17.11	0.17	0.57	4 45 3.7	4 45 9.4	0.3	8.0	0.9
19	13 10 20.61	13 10 23.71	0.14	0.58	4 45 12.6	4 45 13.3	0.1	8.1	0.9
						+			
21	13 10 26.41	13 10 28.72	0.10	0.58	4 45 11.7	4 45 7.6	0.1	8.1	0.9
23	13 10 30.64	13 10 32.17	0.07	0.58	4 45 1.1	4 44 52.2	0.3	8.1	0.9
25	13 10 33.30	13 10 34.03	0.04	0.58	4 44 40.9	4 44 27.2	0.5	8.1	0.9
27	13 10 34.37	13 10 34.30	0.01	0.58	4 44 11.1	4 43 52.6	0.7	8.2	0.9
			—						
29	13 10 33.84	13 10 32.99	0.03	0.58	4 43 31.8	4 43 8.7	0.9	8.2	0.9
31	13 10 31.75	13 10 30.12	0.06	0.58	4 42 43.2	4 42 15.3	1.1	8.2	0.9
Feb. 2	13 10 28.09	13 10 25.66	0.09	0.59	4 41 45.1	4 41 12.5	1.3	8.3	0.9
4	13 10 22.83	13 10 19.62	0.13	0.59	4 40 37.7	4 40 0.6	1.5	8.3	0.9
6	13 10 16.02	13 10 12.03	0.16	0.59	4 39 21.2	4 38 39.5	1.7	8.3	0.9
8	13 10 7.66	13 10 2.90	0.19	0.60	4 37 55.6	4 37 9.5	1.9	8.3	0.9
10	13 9 57.77	13 9 52.27	0.22	0.60	4 36 21.1	4 35 30.6	2.1	8.3	0.9
12	13 9 46.39	13 9 40.14	0.25	0.60	4 34 37.9	4 33 43.1	2.2	8.3	1.0
14	13 9 33.54	13 9 26.57	0.28	0.60	4 32 46.2	4 31 47.3	2.4	8.3	1.0
16	13 9 19.24	13 9 11.57	0.31	0.61	4 30 46.3	4 29 43.4	2.6	8.4	1.0
18	13 9 3.54	13 8 55.17	0.34	0.61	4 28 38.5	4 27 31.7	2.7	8.4	1.0
20	13 8 46.47	13 8 37.43	0.37	0.61	4 26 23.0	4 25 12.3	2.9	8.4	1.0
22	13 8 28.06	13 8 18.36	0.40	0.61	4 23 59.9	4 22 45.6	3.1	8.4	1.0
24	13 8 8.34	13 7 58.00	0.42	0.61	4 21 29.6	4 20 11.8	3.2	8.5	1.0
26	13 7 47.35	13 7 36.39	0.45	0.61	4 18 52.3	4 17 31.2	3.3	8.5	1.0
28	13 7 25.13	13 7 13.57	0.47	0.61	4 16 8.4	4 14 44.0	3.5	8.5	1.0
Mar. 1	13 7 1.72	13 6 49.59	0.50	0.61	4 13 18.1	4 11 50.6	3.6	8.5	1.0
3	13 6 37.18	13 6 24.51	0.52	0.61	4 10 21.7	4 8 51.4	3.7	8.5	1.0
5	13 6 11.57	13 5 58.37	0.54	0.62	4 7 19.7	4 5 46.7	3.8	8.6	1.0
7	13 5 44.92	13 5 31.23	0.57	0.62	4 4 12.5	4 2 37.0	3.9	8.6	1.0
9	13 5 17.30	13 5 3.15	0.59	0.62	4 1 0.3	3 59 22.5	4.0	8.6	1.0
11	13 4 48.77	13 4 34.19	0.60	0.62	3 57 43.6	3 56 3.6	4.1	8.6	1.0
13	13 4 19.40	13 4 4.42	0.62	0.62	3 54 22.8	3 52 41.0	4.2	8.6	1.0
15	13 3 49.25	13 3 33.90	0.64	0.62	3 50 58.4	3 49 15.0	4.3	8.6	1.0
17	13 3 18.39	13 3 2.72	0.65	0.62	3 47 30.9	3 45 46.1	4.4	8.6	1.0
19	13 2 46.89	13 2 30.92	0.66	0.62	3 44 0.7	3 42 14.7	4.4	8.7	1.0
21	13 2 14.82	13 1 58.59	0.67	0.62	3 40 28.2	3 38 41.2	4.4	8.7	1.0
23	13 1 42.25	13 1 25.79	0.68	0.62	3 36 53.7	3 35 5.9	4.5	8.7	1.0

SATURN, 1864.

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.
	h m s	h m s	s	s	South. ° ' "	South. ° ' "	+	"
Mar. 25	13 1 9.23	13 0 52.57	0.69	0.62	3 33 17.7	3 31 29.3	4.5	8.7
27	13 0 35.84	13 0 19.03	0.70	0.62	3 29 40.7	3 27 52.0	4.5	8.7
29	13 0 2.15	12 59 45.22	0.70	0.62	3 26 3.2	3 24 14.5	4.5	8.7
31	12 59 28.23	12 59 11.20	0.71	0.62	3 22 25.7	3 20 37.0	4.5	8.7
Apr. 2	12 58 54.13	12 58 37.05	0.71	0.62	3 18 48.6	3 17 0.3	4.5	8.7
4	12 58 19.96	12 58 2.86	0.71	0.62	3 15 12.3	3 13 24.5	4.5	8.7
6	12 57 45.77	12 57 28.70	0.71	0.62	3 11 37.2	3 9 50.3	4.5	8.7
8	12 57 11.65	12 56 54.64	0.71	0.62	3 8 3.9	3 6 18.1	4.4	8.7
10	12 56 37.68	12 56 20.77	0.71	0.62	3 4 32.9	3 2 48.4	4.4	8.7
12	12 56 3.93	12 55 47.16	0.70	0.62	3 1 4.6	2 59 21.6	4.3	8.7
14	12 55 30.48	12 55 13.88	0.69	0.62	2 57 39.4	2 55 58.2	4.2	8.7
16	12 54 57.38	12 54 41.00	0.69	0.62	2 54 17.9	2 52 38.6	4.2	8.7
18	12 54 24.73	12 54 8.58	0.68	0.62	2 51 0.3	2 49 23.2	4.1	8.7
20	12 53 52.56	12 53 36.68	0.66	0.62	2 47 47.2	2 46 12.3	4.0	8.6
22	12 53 20.95	12 53 5.37	0.65	0.62	2 44 38.7	2 43 6.5	3.9	8.6
24	12 52 49.95	12 52 34.70	0.64	0.62	2 41 35.5	2 40 5.9	3.8	8.6
26	12 52 19.63	12 52 4.74	0.62	0.62	2 38 37.8	2 37 11.1	3.6	8.6
28	12 51 50.04	12 51 35.54	0.61	0.62	2 35 45.9	2 34 22.2	3.5	8.6
30	12 51 21.24	12 51 7.16	0.59	0.62	2 33 0.2	2 31 39.8	3.4	8.6
May 2	12 50 53.30	12 50 39.67	0.57	0.62	2 30 21.0	2 29 4.0	3.2	8.6
4	12 50 26.27	12 50 13.11	0.55	0.62	2 27 48.7	2 26 35.1	3.1	8.5
6	12 50 0.20	12 49 47.55	0.53	0.62	2 25 23.4	2 24 13.6	2.9	8.5
8	12 49 35.16	12 49 23.03	0.51	0.62	2 23 5.7	2 21 59.8	2.8	8.5
10	12 49 11.18	12 48 59.61	0.49	0.62	2 20 55.8	2 19 53.8	2.6	8.5
12	12 48 48.31	12 48 37.31	0.46	0.62	2 18 53.8	2 17 55.9	2.5	8.5
14	12 48 26.60	12 48 16.19	0.44	0.61	2 17 0.1	2 16 6.5	2.3	8.4
16	12 48 6.08	12 47 56.27	0.41	0.61	2 15 14.9	2 14 25.4	2.1	8.4
18	12 47 46.78	12 47 37.60	0.39	0.61	2 13 38.1	2 12 53.0	1.9	8.4
20	12 47 28.73	12 47 20.19	0.36	0.61	2 12 10.0	2 11 29.3	1.7	8.4
22	12 47 11.97	12 47 4.08	0.34	0.60	2 10 50.7	2 10 14.4	1.6	8.3
24	12 46 56.52	12 46 49.29	0.31	0.60	2 9 40.4	2 9 8.7	1.4	8.3
26	12 46 42.39	12 46 35.83	0.28	0.60	2 8 39.3	2 8 12.1	1.2	8.3
28	12 46 29.61	12 46 23.74	0.25	0.60	2 7 47.3	2 7 21.8	1.0	8.3
30	12 46 18.21	12 46 13.04	0.22	0.59	2 7 4.7	2 6 47.0	0.8	8.3
June 1	12 46 8.21	12 46 3.75	0.19	0.59	2 6 31.5	2 6 18.5	0.6	8.3
3	12 45 59.64	12 45 55.89	0.16	0.59	2 6 7.8	2 5 59.5	0.4	8.3
5	12 45 52.51	12 45 49.49	0.13	0.59	2 5 53.6	2 5 50.1	0.2	8.3
7	12 45 46.83	12 45 44.54	0.10	0.59	2 5 48.9	2 5 50.3	0.0	8.2
9	12 45 42.62	12 45 41.06	0.07	0.59	2 5 54.0	2 6 0.1	0.2	8.2
11	12 45 39.87	12 45 39.05	0.04	0.59	2 6 8.5	2 6 19.4	0.4	8.2
13	12 45 38.59	12 45 38.50	0.01	0.58	2 6 32.7	2 6 48.4	0.6	8.1
15	12 45 38.78	12 45 39.42	+	0.58	2 7 6.4	2 7 26.8	0.8	8.1

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R. A. in Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	s	South. ° ' "	South. ° ' "	— " "	" "	" "
June 17	12 45 40.43	12 45 41.81	0.05	0.58	2 7 49.5	2 8 14.6	1.0	8.1	0.9
19	12 45 43.55	12 45 45.65	0.08	0.57	2 8 42.0	2 9 11.7	1.2	8.0	0.9
21	12 45 48.12	12 45 50.95	0.11	0.57	2 9 43.8	2 10 18.1	1.4	8.0	0.9
23	12 45 54.14	12 45 57.69	0.14	0.57	2 10 54.8	2 11 33.7	1.6	8.0	0.9
25	12 46 1.61	12 46 5.89	0.17	0.57	2 12 14.9	2 12 58.4	1.8	8.0	0.9
27	12 46 10.53	12 46 15.53	0.20	0.57	2 13 44.2	2 14 32.2	2.0	7.9	0.9
29	12 46 20.89	12 46 26.60	0.23	0.57	2 15 22.4	2 16 14.9	2.1	7.9	0.9
July 1	12 46 32.68	12 46 39.11	0.26	0.57	2 17 9.7	2 18 6.7	2.3	7.9	0.9
3	12 46 45.89	12 46 53.03	0.29	0.56	2 19 5.9	2 20 7.2	2.5	7.8	0.9
5	12 47 0.51	12 47 8.35	0.32	0.56	2 21 10.7	2 22 16.4	2.7	7.8	0.9
7	12 47 16.53	12 47 25.06	0.35	0.56	2 23 24.2	2 24 34.1	2.9	7.8	0.9
9	12 47 33.93	12 47 43.13	0.38	0.56	2 25 46.1	2 27 0.2	3.0	7.7	0.9
11	12 47 52.68	12 48 2.56	0.40	0.56	2 28 16.3	2 29 34.4	3.2	7.7	0.9
13	12 48 12.78	12 48 23.33	0.43	0.56	2 30 54.5	2 32 16.6	3.4	7.7	0.9
15	12 48 34.21	12 48 45.41	0.46	0.56	2 33 40.6	2 35 6.6	3.6	7.7	0.9
17	12 48 56.94	12 49 8.78	0.49	0.55	2 36 34.6	2 38 4.4	3.7	7.6	0.9
19	12 49 20.94	12 49 33.41	0.51	0.55	2 39 36.1	2 41 9.7	3.9	7.6	0.9
21	12 49 46.19	12 49 59.28	0.54	0.55	2 42 45.1	2 44 22.4	4.0	7.6	0.9
23	12 50 12.68	12 50 26.37	0.56	0.55	2 46 1.4	2 47 42.3	4.2	7.6	0.9
25	12 50 40.37	12 50 54.67	0.59	0.54	2 49 24.9	2 51 9.2	4.3	7.5	0.9
27	12 51 9.27	12 51 24.17	0.61	0.54	2 52 55.3	2 54 43.1	4.5	7.5	0.9
29	12 51 39.36	12 51 54.83	0.64	0.54	2 56 32.5	2 58 23.6	4.6	7.5	0.9
31	12 52 10.60	12 52 26.65	0.66	0.54	3 0 16.4	3 2 10.8	4.7	7.5	0.9
Aug. 2	12 52 42.97	12 52 59.57	0.69	0.54	3 4 6.7	3 6 4.2	4.9	7.4	0.8
4	12 53 16.45	12 53 33.60	0.71	0.54	3 8 3.3	3 10 3.8	5.0	7.4	0.8
Dec. 17	13 47 51.83	13 48 10.44	0.78	0.54	8 35 36.8	8 37 8.7	3.9	7.4	0.8
19	13 48 28.78	13 48 46.83	0.76	0.54	8 38 38.7	8 40 6.8	3.7	7.4	0.8
21	13 49 4.61	13 49 22.09	0.73	0.54	8 41 33.2	8 42 57.7	3.6	7.4	0.8
23	13 49 39.28	13 49 56.17	0.71	0.54	8 44 20.3	8 45 41.0	3.4	7.4	0.8
25	13 50 12.76	13 50 29.04	0.68	0.55	8 46 59.8	8 48 16.6	3.2	7.5	0.9
27	13 50 45.01	13 51 0.66	0.66	0.55	8 49 31.6	8 50 44.6	3.1	7.5	0.9
29	13 51 16.00	13 51 31.02	0.63	0.55	8 51 55.6	8 53 4.6	2.9	7.5	0.9
31	13 51 45.70	13 52 0.06	0.60	0.55	8 54 11.7	8 55 16.7	2.8	7.5	0.9

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
	<i>h m s</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	<i>North.</i> <i>° ' "</i>	<i>North.</i> <i>° ' "</i>	<i>"</i>	<i>"</i>	<i>"</i>
Jan. 1	5 26 44.19	5 26 33.83	0.43	0.15	23 22 39.4	23 22 31.4	0.3	2.1	0.5
3	5 26 23.55	5 26 13.38	0.43	0.15	23 22 23.5	23 22 15.7	0.3	2.1	0.5
5	5 26 3.30	5 25 53.32	0.42	0.15	23 22 8.0	23 22 0.2	0.3	2.1	0.5
7	5 25 43.46	5 25 33.71	0.41	0.15	23 21 52.6	23 21 45.0	0.3	2.1	0.5
9	5 25 24.07	5 25 14.56	0.40	0.15	23 21 37.4	23 21 29.8	0.3	2.0	0.5
11	5 25 5.17	5 24 55.91	0.39	0.15	23 21 22.4	23 21 15.0	0.3	2.0	0.5
13	5 24 46.78	5 24 37.79	0.38	0.15	23 21 7.7	23 21 0.5	0.3	2.0	0.5
15	5 24 28.94	5 24 20.24	0.37	0.15	23 20 53.4	23 20 46.3	0.3	2.0	0.5
17	5 24 11.70	5 24 3.30	0.35	0.15	23 20 39.3	23 20 32.4	0.3	2.0	0.5
19	5 23 55.07	5 23 46.99	0.34	0.15	23 20 25.6	23 20 18.9	0.3	2.0	0.5
21	5 23 39.08	5 23 31.33	0.33	0.15	23 20 12.4	23 20 5.9	0.3	2.0	0.5
23	5 23 23.76	5 23 16.35	0.31	0.15	23 19 59.6	23 19 53.5	0.3	2.0	0.5
25	5 23 9.13	5 23 2.08	0.30	0.15	23 19 47.4	23 19 41.5	0.3	2.0	0.5
27	5 22 55.21	5 22 48.52	0.28	0.15	23 19 35.8	23 19 30.1	0.2	2.0	0.5
29	5 22 42.02	5 22 35.71	0.27	0.15	23 19 24.6	23 19 19.2	0.2	2.0	0.5
31	5 22 29.60	5 22 23.67	0.25	0.15	23 19 13.9	23 19 8.9	0.2	2.0	0.5
Feb. 2	5 22 17.95	5 22 12.43	0.23	0.15	23 19 3.9	23 18 59.1	0.2	2.0	0.5
4	5 22 7.11	5 22 1.99	0.22	0.15	23 18 54.5	23 18 50.2	0.2	2.0	0.5
6	5 21 57.09	5 21 52.40	0.20	0.15	23 18 46.0	23 18 41.9	0.2	2.0	0.5
8	5 21 47.92	5 21 43.65	0.18	0.15	23 18 38.0	23 18 34.3	0.2	2.0	0.5
10	5 21 39.60	5 21 35.77	0.16	0.15	23 18 30.8	23 18 27.4	0.1	2.0	0.5
12	5 21 32.16	5 21 28.77	0.15	0.15	23 18 24.2	23 18 21.2	0.1	2.0	0.5
14	5 21 25.60	5 21 22.66	0.13	0.15	23 18 18.4	23 18 15.9	0.1	2.0	0.5
16	5 21 19.94	5 21 17.45	0.11	0.15	23 18 13.5	23 18 11.3	0.1	2.0	0.5
18	5 21 15.18	5 21 13.14	0.09	0.15	23 18 9.4	23 18 7.6	0.1	2.0	0.5
20	5 21 11.33	5 21 9.74	0.07	0.15	23 18 6.1	23 18 4.8	0.1	2.0	0.5
22	5 21 8.38	5 21 7.25	0.05	0.15	23 18 3.7	23 18 2.8	0.0	2.0	0.5
24	5 21 6.35	5 21 5.68	0.03	0.15	23 18 2.1	23 18 1.6	0.0	2.0	0.5
26	5 21 5.23	5 21 5.02	0.01	0.15	23 18 1.3	23 18 1.3	0.0	2.0	0.5
28	5 21 5.05	5 21 5.30	+	0.01	23 18 1.4	23 18 1.8	0.0	2.0	0.5
Mar. 1	5 21 5.79	5 21 6.51	0.03	0.15	23 18 2.3	23 18 3.1	0.0	2.0	0.5
3	5 21 7.46	5 21 8.65	0.04	0.15	23 18 4.1	23 18 5.2	0.0	2.0	0.5
5	5 21 10.07	5 21 11.72	0.06	0.15	23 18 6.7	23 18 8.3	+	2.0	0.5
7	5 21 13.60	5 21 15.71	0.08	0.15	23 18 10.1	23 18 12.2	0.1	2.0	0.5
9	5 21 18.05	5 21 20.63	0.10	0.15	23 18 14.5	23 18 17.0	0.1	2.0	0.5
11	5 21 23.44	5 21 26.47	0.12	0.15	23 18 19.6	23 18 22.5	0.1	2.0	0.5
13	5 21 29.74	5 21 33.23	0.14	0.15	23 18 25.5	23 18 28.8	0.1	2.0	0.4
15	5 21 36.95	5 21 40.89	0.16	0.15	23 18 32.2	23 18 36.0	0.2	2.0	0.4
17	5 21 45.06	5 21 49.45	0.18	0.14	23 18 39.9	23 18 44.0	0.2	1.9	0.4
19	5 21 54.07	5 21 58.90	0.20	0.14	23 18 48.3	23 18 52.8	0.2	1.9	0.4
21	5 22 3.95	5 22 9.21	0.21	0.14	23 18 57.5	23 19 2.4	0.2	1.9	0.4
23	5 22 14.69	5 22 20.39	0.23	0.14	23 19 7.4	23 19 12.5	0.2	1.9	0.4

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	°	North. ° ' "	North. ° ' "	+	"	"
Mar. 25	5 22 26.29	5 22 32.41	0.25	0.14	23 19 18.0	23 19 23.5	0.2	1.9	0.4
27	5 22 38.74	5 22 45.27	0.27	0.14	23 19 29.2	23 19 35.1	0.2	1.9	0.4
29	5 22 52.01	5 22 58.96	0.29	0.14	23 19 41.2	23 19 47.5	0.3	1.9	0.4
31	5 23 6.11	5 23 13.47	0.30	0.14	23 19 53.9	23 20 0.5	0.3	1.9	0.4
Apr. 2	5 23 21.03	5 23 28.79	0.32	0.14	23 20 7.2	23 20 14.1	0.3	1.9	0.4
4	5 23.36.75	5 23.44.90	0.34	0.14	23 20 21.1	23 20 28.4	0.3	1.9	0.4
6	5 23 53.25	5 24 1.80	0.35	0.14	23 20 35.7	23 20 43.2	0.3	1.9	0.4
8	5 24 10.53	5 24 19.45	0.37	0.14	23 20 50.7	23 20 58.5	0.3	1.9	0.4
10	5 24 28.55	5 24 37.83	0.38	0.14	23 21 6.3	23 21 14.3	0.3	1.9	0.4
12	5 24 47.30	5 24 56.94	0.40	0.14	23 21 22.4	23 21 30.6	0.3	1.9	0.4
			—						
Nov. 3	5 56 19.02	5 56 12.39	0.27	0.14	23 38 33.7	23 38 34.1	0.0	2.0	0.5
5	5 56 5.58	5 55 58.58	0.29	0.14	23 38 34.5	23 38 34.8	0.0	2.0	0.5
7	5 55 51.41	5 55 44.06	0.30	0.14	23 38 35.1	23 38 35.4	0.0	2.0	0.5
9	5 55 36.53	5 55 28.84	0.32	0.14	23 38 35.6	23 38 35.8	0.0	2.0	0.5
11	5 55 20.98	5 55 12.96	0.33	0.14	23 38 36.0	23 38 36.1	0.0	2.0	0.5
13	5 55 4.77	5 54 56.43	0.34	0.14	23 38 36.2	23 38 36.2	0.0	2.0	0.5
15	5 54 47.93	5 54 39.28	0.36	0.14	23 38 36.1	23 38 36.0	0.0	2.0	0.5
17	5 54 30.49	5 54 21.55	0.37	0.15	23 38 35.8	23 38 35.5	0.0	2.1	0.5
19	5 54 12.47	5 54 3.25	0.38	0.15	23 38 35.2	23 38 34.8	0.0	2.1	0.5
21	5 53 53.89	5 53 44.41	0.39	0.15	23 38 34.3	23 38 33.7	0.0	2.1	0.5
23	5 53 34.80	5 53 25.07	0.40	0.15	23 38 33.1	23 38 32.3	0.0	2.1	0.5
25	5 53 15.23	5 53 5.27	0.41	0.15	23 38 31.6	23 38 30.8	0.0	2.1	0.5
27	5 52 55.20	5 52 45.03	0.42	0.15	23 38 29.9	23 38 28.9	0.0	2.1	0.5
29	5 52 34.76	5 52 24.40	0.43	0.15	23 38 28.0	23 38 26.9	0.0	2.1	0.5
Dec. 1	5 52 13.95	5 52 3.41	0.44	0.15	23 38 25.8	23 38 24.7	0.0	2.1	0.5
3	5 51 52.80	5 51 42.11	0.44	0.15	23 38 23.4	23 38 22.1	0.1	2.1	0.5
5	5 51 31.36	5 51 20.54	0.45	0.15	23 38 20.7	23 38 19.2	0.1	2.1	0.5
7	5 51 9.66	5 50 58.72	0.45	0.15	23 38 17.6	23 38 15.9	0.1	2.1	0.5
9	5 50 47.73	5 50 36.70	0.46	0.15	23 38 14.3	23 38 12.5	0.1	2.1	0.5
11	5 50 25.63	5 50 14.53	0.46	0.15	23 38 10.7	23 38 8.8	0.1	2.1	0.5
13	5 50 3.39	5 49 52.23	0.46	0.15	23 38 6.9	23 38 4.9	0.1	2.1	0.5
15	5 49 41.04	5 49 29.83	0.47	0.15	23 38 2.8	23 38 0.7	0.1	2.1	0.5
17	5 49 18.62	5 49 7.40	0.47	0.15	23 37 58.5	23 37 56.1	0.1	2.1	0.5
19	5 48 36.18	5 48 44.96	0.47	0.15	23 37 53.8	23 37 51.3	0.1	2.1	0.5
21	5 48 33.75	5 48 22.55	0.47	0.15	23 37 48.8	23 37 46.2	0.1	2.1	0.5
23	5 48 11.36	5 48 0.20	0.47	0.15	23 37 43.5	23 37 40.8	0.1	2.1	0.5
25	5 47 49.07	5 47 37.97	0.46	0.15	23 37 38.1	23 37 35.3	0.1	2.1	0.5
27	5 47 26.91	5 47 15.90	0.46	0.15	23 37 32.5	23 37 29.7	0.1	2.1	0.5
29	5 47 4.94	5 46 54.04	0.46	0.15	23 37 26.8	23 37 23.9	0.1	2.1	0.5
31	5 46 43.19	5 46 32.40	0.45	0.15	23 37 21.0	23 37 18.0	0.1	2.1	0.5

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in 1 Hour of Long.	Hor. Par.
	h m s	h m s	+	North.	North.	+	"
Jan. 1	0 14 47.43	0 14 49.66	0.08	0 1 2.1	0 1 19.4	0.7	0.3
3	0 14 52.01	0 14 54.49	0.10	0 1 37.5	0 1 56.4	0.8	0.3
5	0 14 57.09	0 14 59.82	0.11	0 2 16.1	0 2 36.6	0.9	0.3
7	0 15 2.66	0 15 5.63	0.12	0 2 57.8	0 3 19.9	1.0	0.3
9	0 15 8.71	0 15 11.92	0.13	0 3 42.7	0 4 6.3	1.0	0.3
11	0 15 15.25	0 15 18.70	0.14	0 4 30.7	0 4 55.8	1.1	0.3
13	0 15 22.27	0 15 25.96	0.15	0 5 21.6	0 5 48.2	1.2	0.3
15	0 15 29.76	0 15 33.67	0.16	0 6 15.6	0 6 43.7	1.2	0.3
17	0 15 37.70	0 15 41.84	0.17	0 7 12.3	0 7 41.8	1.3	0.3
19	0 15 46.10	0 15 50.46	0.18	0 8 11.8	0 8 42.7	1.3	0.3
21	0 15 54.93	0 15 59.51	0.19	0 9 14.1	0 9 46.3	1.4	0.3
23	0 16 4.19	0 16 8.99	0.20	0 10 19.1	0 10 52.7	1.4	0.3
25	0 16 13.89		0.21	0 11 26.9			
Aug. 13	0 32 0.84	0 31 57.13	0.15	1 48 11.3	1 47 44.5	1.1	0.3
15	0 31 53.33	0 31 49.44	0.16	1 47 17.3	1 46 49.6	1.1	0.3
17	0 31 45.46	0 31 41.40	0.17	1 46 21.2	1 45 52.3	1.2	0.3
19	0 31 37.24	0 31 33.01	0.17	1 45 23.0	1 44 53.1	1.2	0.3
21	0 31 28.68	0 31 24.27	0.18	1 44 22.7	1 43 51.8	1.3	0.3
23	0 31 19.78	0 31 15.21	0.19	1 43 20.3	1 42 48.5	1.3	0.3
25	0 31 10.56	0 31 5.84	0.20	1 42 16.1	1 41 43.4	1.4	0.3
27	0 31 1.05	0 30 56.18	0.20	1 41 10.2	1 40 36.6	1.4	0.3
29	0 30 51.24	0 30 46.22	0.21	1 40 2.5	1 39 28.1	1.4	0.3
31	0 30 41.13	0 30 35.98	0.21	1 38 53.3	1 38 18.1	1.5	0.3
Sept. 2	0 30 30.77	0 30 25.50	0.22	1 37 42.6	1 37 6.7	1.5	0.3
4	0 30 20.17	0 30 14.79	0.22	1 36 30.5	1 35 54.0	1.5	0.3
6	0 30 9.34	0 30 3.84	0.23	1 35 17.1	1 34 39.9	1.6	0.3
8	0 29 58.28	0 29 52.69	0.23	1 34 2.4	1 33 24.8	1.6	0.3
10	0 29 47.04	0 29 41.35	0.24	1 32 46.8	1 32 8.7	1.6	0.3
12	0 29 35.62	0 29 29.86	0.24	1 31 30.4	1 30 51.9	1.6	0.3
14	0 29 24.06	0 29 18.22	0.24	1 30 13.2	1 29 34.2	1.6	0.3
16	0 29 12.35	0 29 6.44	0.25	1 28 55.1	1 28 15.9	1.6	0.3
18	0 29 0.50	0 28 54.54	0.25	1 27 36.4	1 26 57.0	1.7	0.3
20	0 28 48.55	0 28 42.55	0.25	1 26 17.4	1 25 37.8	1.7	0.3
22	0 28 36.51	0 28 30.46	0.25	1 24 58.0	1 24 18.2	1.7	0.3
24	0 28 24.39	0 28 18.30	0.25	1 23 38.3	1 22 58.5	1.7	0.3
26	0 28 12.20	0 28 6.09	0.25	1 22 18.6	1 21 38.8	1.7	0.3
28	0 27 59.98	0 27 53.86	0.26	1 20 58.9	1 20 19.1	1.7	0.3
30	0 27 47.74	0 27 41.62	0.26	1 19 39.3	1 18 59.6	1.6	0.3
Oct. 2	0 27 35.51	0 27 29.41	0.25	1 18 20.0	1 17 40.4	1.6	0.3
4	0 27 23.31	0 27 17.22	0.25	1 17 1.0	1 16 21.8	1.6	0.3
6	0 27 11.15	0 27 5.10	0.25	1 15 42.6	1 15 3.6	1.6	0.3
8	0 26 59.06	0 26 53.05	0.25	1 14 24.8	1 13 46.2	1.6	0.3

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in 1 Hour of Long.	Hor. Par.
	h m s	h m s	"	North. ° ' "	North. ° ' "	"	"
Oct. 10	0 26 47.06	0 26 41.09	0.25	1 13 7.8	1 12 29.6	1.6	0.3
12	0 26 35.15	0 26 29.24	0.25	1 11 51.6	1 11 13.9	1.6	0.3
14	0 26 23.35	0 26 17.51	0.24	1 10 36.5	1 9 59.3	1.5	0.3
16	0 26 11.70	0 26 5.93	0.24	1 9 22.5	1 8 45.9	1.5	0.3
18	0 26 0.20	0 25 54.51	0.24	1 8 9.6	1 7 33.8	1.5	0.3
20	0 25 48.86	0 25 43.28	0.23	1 6 58.2	1 6 23.0	1.5	0.3
22	0 25 37.73	0 25 32.25	0.23	1 5 48.2	1 5 13.8	1.4	0.3
24	0 25 26.81	0 25 21.44	0.23	1 4 39.8	1 4 6.2	1.4	0.3
26	0 25 16.12	0 25 10.87	0.22	1 3 33.1	1 3 0.5	1.4	0.3
28	0 25 5.67	0 25 0.54	0.22	1 2 18.3	1 1 56.6	1.3	0.3
30	0 24 55.48	0 24 50.50	0.21	1 1 25.3	1 0 54.7	1.3	0.3
Nov. 1	0 24 45.58	0 24 40.74	0.20	1 0 24.4	0 59 54.8	1.2	0.3
3	0 24 35.97	0 24 31.29	0.20	0 59 25.6	0 58 57.1	1.2	0.3
5	0 24 26.68	0 24 22.15	0.19	0 58 29.0	0 58 1.6	1.2	0.3
7	0 24 17.71	0 24 13.36	0.18	0 57 34.8	0 57 8.6	1.1	0.3
9	0 24 9.08	0 24 4.91	0.18	0 56 43.0	0 56 18.0	1.1	0.3
11	0 24 0.82	0 23 56.83	0.17	0 55 53.7	0 55 30.0	1.0	0.3
13	0 23 52.92	0 23 49.12	0.16	0 55 6.9	0 54 44.5	0.9	0.3
15	0 23 45.41	0 23 41.80	0.15	0 54 22.8	0 54 1.7	0.9	0.3
17	0 23 38.28	0 23 34.87	0.14	0 53 41.3	0 53 21.5	0.8	0.3
19	0 23 31.57	0 23 28.37	0.14	0 53 2.4	0 52 44.1	0.8	0.3
21	0 23 25.27	0 23 22.28	0.13	0 52 26.4	0 52 9.5	0.7	0.3
23	0 23 19.39	0 23 16.63	0.12	0 51 53.3	0 51 38.0	0.7	0.3
25	0 23 13.97	0 23 11.43	0.11	0 51 23.3	0 51 9.5	0.6	0.3
27	0 23 9.00	0 23 6.69	0.10	0 50 56.3	0 50 44.0	0.5	0.3
29	0 23 4.49	0 23 2.41	0.09	0 50 32.4	0 50 21.7	0.5	0.3
Dec. 1	0 23 0.45	0 22 58.61	0.08	0 50 11.7	0 50 2.6	0.4	0.3
3	0 22 56.88	0 22 55.28	0.07	0 49 54.2	0 49 46.7	0.3	0.3
5	0 22 53.80	0 22 52.44	0.06	0 49 39.9	0 49 34.0	0.3	0.3
7	0 22 51.19	0 22 50.07	0.05	0 49 28.8	0 49 24.5	0.2	0.3
9	0 22 49.08	0 22 48.21	0.04	0 49 20.9	0 49 18.2	0.1	0.3
11	0 22 47.47	0 22 46.85	0.03	0 49 16.3	0 49 15.3	0.1	0.3
13	0 22 46.36	0 22 45.98	0.02	0 49 15.1	0 49 15.6	0.0	0.3
						+	
15	0 22 45.74	0 22 45.63	0.01	0 49 17.0	0 49 19.2	0.1	0.3
17	0 22 45.64	0 22 45.77	0.00	0 49 22.3	0 49 26.2	0.2	0.3
			+				
19	0 22 46.04	0 22 46.43	0.01	0 49 31.0	0 49 36.6	0.2	0.3
21	0 22 46.95	0 22 47.59	0.02	0 49 43.0	0 49 50.1	0.3	0.3
23	0 22 48.37	0 22 49.26	0.03	0 49 58.2	0 50 7.0	0.4	0.3
25	0 22 50.30	0 22 51.45	0.05	0 50 16.7	0 50 27.1	0.4	0.3
27	0 22 52.74	0 22 54.15	0.06	0 50 38.5	0 50 50.6	0.5	0.3
29	0 22 55.70	0 22 57.37	0.07	0 51 3.6	0 51 17.4	0.6	0.3
31	0 22 59.17	0 23 1.09	0.08	0 51 32.0	0 51 47.4	0.6	0.3

MEAN PLACES FOR JANUARY ^{0d}597. (See page 329.).

Star's Name.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
		^h ^m ^s	^s	[°] ['] ["]	["]
α Andromedæ - - -	2	0 1 21.723	+ 3.0853	N.28 20 22.22	+ 19.901
γ Pegasi (<i>Algenib</i>)	3.2	0 6 14.063	3.0805	N.14 25 38.23	20.029
β Hydri - - - - -	3	0 18 33.230	3.2853	S.78 1 15.90	20.250
12 Ceti - - - - -	6	0 23 5.912	3.0593	S. 4 42 33.14	19.943
α Cassiopeæ - - -	var.	0 32 48.530	+ 3.3590	N.55 47 27.46	+ 19.811
β Ceti - - - - -	2	0 36 45.578	3.0124	S.18 44 1.81	19.818
ϵ Piscium - - - - -	4	0 55 53.248	3.1103	N. 7 9 25.72	19.462
α Urs. Min. (<i>Polaris</i>)	2	1 9 18.750	19.3644	N.88 35 4.01	19.144
θ Ceti - - - - -	3	1 17 13.489	+ 2.9963	S. 8 53 10.46	+ 18.707
η Piscium - - - - -	4.3	1 24 12.515	3.1975	N.14 38 36.97	18.713
α Eridani (<i>Achernar</i>)	1	1 32 38.614	2.2356	S.57 55 42.05	18.427
ν Piscium - - - - -	5.4	1 34 21.320	3.1134	N. 4 47 53.49	18.335
β Arietis - - - - -	3.2	1 47 7.886	+ 3.2951	N.20 8 30.50	+ 17.792
α Arietis - - - - -	2	1 59 30.719	3.3653	N.22 49 3.46	17.239
67 Ceti - - - - -	6	2 10 12.006	2.9861	S. 7 3 2.05	16.771
ξ Ceti - - - - -	4	2 20 55.846	3.1795	N. 7 50 54.57	16.362
γ Ceti - - - - -	3.4	2 36 15.305	+ 3.1007	N. 2 39 37.61	+ 15.389
α Ceti - - - - -	2.3	2 55 10.277	3.1268	N. 3 33 13.86	14.364
δ Arietis - - - - -	4.5	3 3 51.392	3.4172	N.19 12 36.08	13.941
α Persei - - - - -	2	3 14 37.698	4.2452	N.49 22 25.78	13.196
η Tauri - - - - -	3	3 39 24.232	+ 3.5513	N.23 40 54.41	+ 11.484
γ Eridani - - - - -	3	3 51 41.028	2.7943	S.13 53 52.03	10.533
δ Eridani - - - - -	4.5	4 5 13.673	2.9211	S. 7 11 40.16	9.704
ϵ Tauri - - - - -	4.3	4 20 40.669	3.4916	N.18 52 32.50	8.387
α Tauri (<i>Aldebaran</i>)	1	4 28 7.172	+ 3.4347	N.16 13 58.31	+ 7.649
ι Aurigæ - - - - -	3	4 48 8.446	3.8937	N.32 56 49.93	6.166
ϵ Leporis - - - - -	4.3	4 59 42.196	2.5356	S.22 33 22.23	5.145
α Aurigæ (<i>Capella</i>)	1	5 6 38.811	4.4208	N.45 51 19.54	4.194
β Orionis (<i>Rigel</i>)	1	5 8 0.133	+ 2.8796	S. 8 21 42.00	+ 4.488
β Tauri - - - - -	2	5 17 41.764	3.7868	N.28 29 19.62	3.480
δ Orionis - - - - -	2	5 25 3.591	3.0639	S. 0 24 10.59	3.006
α Leporis - - - - -	3	5 26 43.980	2.6458	S.17 55 19.72	2.903
ϵ Orionis - - - - -	2	5 29 18.767	+ 3.0412	S. 1 17 30.53	+ 2.660
α Columbæ - - - - -	2	5 34 43.654	2.1776	S.34 8 53.32	2.206
α Orionis - - - - -	var.	5 47 48.550	3.2460	N. 7 22 42.34	+ 1.061
ν Orionis - - - - -	5.4	5 59 48.430	3.4259	N.14 46 53.12	- 0.004
μ Geminorum - - -	3	6 14 43.948	+ 3.6322	N.22 34 47.34	- 1.418
α Argus (<i>Canopus</i>)	1	6 20 56.101	1.3302	S.52 37 21.05	1.830
γ Geminorum - - -	2.3	6 29 51.304	3.4663	N.16 30 43.66	2.572
51 (Hev.) Cephei - -	5	6 35 38.894	+ 30.3683	N.87 14 41.14	- 3.207

MEAN PLACES FOR JANUARY 0^d 597. (See page 329.)

Star's Name.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
α Canis Maj. (<i>Sirius</i>)	1	^h 6 ^m 39 ^s 9.412	+ 2.6452	S. 16° 31' 56".66	- 4.636
ϵ Canis Majoris -	2.1	6 53 16.879	2.3579	S. 28 47 22.24	4.633
γ Canis Majoris -	4.5	6 57 36.364	2.7158	S. 15 26 5.02	4.984
δ Geminorum -	3.4	7 11 59.928	3.5918	N. 22 13 46.02	6.216
α' Geminor. (<i>Castor</i>)	2.1	7 25 55.099	+ 3.8425	N. 32 10 59.57	- 7.421
α Can. Min. (<i>Procyon</i>)	1	7 32 10.820	3.1449	N. 5 34 15.80	8.885
β Geminor. (<i>Pollux</i>)	1.2	7 36 59.375	3.6821	N. 28 21 5.41	8.296
δ Cancri -	5	7 55 9.728	3.6951	N. 28 10 21.75	9.726
ι Argūs -	3	8 1 45.150	+ 2.5548	S. 23 54 51.36	- 10.094
η Cancri -	6	8 24 50.368	3.4795	N. 20 54 1.95	11.905
ϵ Hydræ -	3.4	8 39 34.328	3.1842	N. 6 54 56.13	12.901
ι Ursæ Majoris -	3	8 49 52.778	4.1428	N. 48 34 22.57	13.817
δ Cancri -	6	9 11 23.100	+ 3.3565	N. 18 16 47.33	- 15.032
ι Argūs -	2	9 13 26.937	1.6017	S. 38 42 17.50	14.919
α Hydræ -	2	9 20 54.197	2.9486	S. 8 4 15.20	15.383
θ Ursæ Majoris -	3	9 23 44.499	4.0552	N. 52 17 41.71	16.133
ϵ Leonis -	3	9 38 7.564	+ 3.4198	N. 24 23 55.30	- 16.353
π Leonis -	5	9 53 1.456	3.1769	N. 8 41 42.61	17.085
α Leonis (<i>Regulus</i>)	1.2	10 1 7.561	3.2028	N. 12 37 49.79	17.409
γ' Leonis -	2	10 12 28.220	3.3172	N. 20 31 41.19	18.035
ρ Leonis -	4	10 25 38.891	+ 3.1665	N. 10 0 19.11	- 18.409
η Argūs -	2	10 39 47.509	2.3080	S. 58 58 10.24	18.748
ι Leonis -	5	10 42 6.346	3.1580	N. 11 15 50.52	18.924
α Ursæ Majoris -	2	10 55 18.563	3.7702	N. 62 29 3.22	19.350
χ Leonis -	5	10 58 0.008	+ 3.0985	N. 8 4 13.42	- 19.403
δ Leonis -	2.3	11 6 52.296	3.2031	N. 21 16 5.47	19.664
δ Hydræ et Crateris -	3.4	11 12 32.535	2.9945	S. 14 2 35.42	19.450
ν Leonis -	5.4	11 29 59.145	3.0690	S. 0 4 23.00	19.856
β Leonis -	2	11 42 7.191	+ 3.0653	N. 15 19 55.97	- 20.096
γ Ursæ Majoris -	2.3	11 46 39.769	3.1920	N. 54 27 2.96	20.025
ϵ Corvi -	3	12 3 8.049	3.0748	S. 21 51 47.37	20.046
β Chamæleontis -	5	12 10 25.941	3.3291	S. 78 33 25.72	20.043
η Virginis -	3.4	12 12 56.855	+ 3.0648	N. 0 5 21.98	- 20.056
α' Crucis -	1	12 19 3.125	3.2610	S. 62 20 38.57	19.935
β Corvi -	2.3	12 27 14.721	3.1309	S. 22 38 39.91	19.981
γ' Virginis -	3.2	12 34 46.191	3.0372	S. 0 42 12.61	19.871
ι Canum Venaticor. -	3	12 49 39.588	+ 2.8170	N. 39 3 12.76	- 19.529
θ Virginis -	4.5	13 2 54.595	3.0984	S. 4 48 43.54	19.343
α Virginis (<i>Spica</i>)	1	13 18 1.836	3.1500	S. 10 27 1.82	18.942
ζ Virginis -	3.4	13 27 45.920	+ 3.0519	N. 0 6 2.84	- 18.538

MEAN PLACES FOR JANUARY 0^d. 597. (See page 329.)

Star's Name.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
		^h ^m ^s	^s	[°] ['] ["]	["]
γ Ursæ Majoris - -	2	13 42 10.691	+ 2.3734	N. 49 59 34.92	- 18.118
η Bootis - - -	3	13 48 12.523	2.8582	N. 19 4 50.39	18.214
β Centauri - - -	1	13 54 15.303	4.1568	S. 59 42 53.55	17.682
τ Virginis - - -	4	13 54 43.560	3.0472	N. 2 12 14.42	17.661
α Bootis (<i>Arcturus</i>)	1	14 9 27.494	+ 2.7336	N. 19 53 30.89	- 18.918
ρ Bootis - - -	4.3	14 25 58.128	2.5869	N. 30 58 11.93	15.985
α Centauri - - -	1	14 30 24.124	4.0315	S. 60 16 8.92	15.046
σ Bootis - - -	2.3	14 39 2.787	2.6194	N. 27 38 56.79	15.411
α Libræ - - -	2.3	14 43 21.503	+ 3.3049	S. 15 28 28.27	- 15.231
β Ursæ Minoris - -	2	14 51 8.372	- 0.2551	N. 74 42 39.77	14.755
ψ Bootis - - -	4.5	14 58 37.155	+ 2.5704	N. 27 28 47.26	14.262
β Libræ - - -	2	15 9 41.447	3.2182	S. 8 52 43.72	13.582
α Coronæ Borealis -	2	15 28 55.764	+ 2.5376	N. 27 10 27.71	- 12.354
α Serpentis - - -	2.3	15 37 34.165	+ 2.9488	N. 6 51 20.92	11.619
ζ Ursæ Minoris - -	4.5	15 48 59.349	- 2.3009	N. 78 12 40.65	10.846
β Scorpii - - -	2	15 57 31.940	+ 3.4767	S. 19 25 48.94	10.232
δ Ophiuchi - - -	3	16 7 13.170	+ 3.1357	S. 3 20 29.53	- 9.596
α Scorpii (<i>Antares</i>)	1.2	16 21 4.336	3.6658	S. 26 7 37.20	8.417
η Draconis - - -	3.2	16 22 9.910	0.8224	N. 61 49 22.27	8.223
α Trianguli Australis	2	16 34 17.883	6.2764	S. 68 46 19.80	7.402
ζ Herculis - - -	3.2	16 36 9.587	+ 2.2623	N. 31 51 4.42	- 6.728
κ Ophiuchi - - -	3.4	16 51 13.935	+ 2.8338	N. 9 35 20.46	5.904
σ Ursæ Minoris - -	4.5	17 0 1.657	- 6.4081	N. 82 15 20.25	5.193
α Herculis - - -	var.	17 8 26.744	+ 2.7319	N. 14 32 52.56	4.428
θ Ophiuchi - - -	3.4	17 13 39.500	+ 3.6760	S. 24 51 35.37	- 4.010
β Draconis - - -	3.2	17 27 21.595	1.3505	N. 52 24 11.69	2.843
α Ophiuchi - - -	2	17 28 37.265	2.7806	N. 12 39 42.03	2.946
μ Herculis - - -	3.4	17 41 8.165	2.3423	N. 27 48 8.22	2.383
γ Draconis - - -	2.3	17 53 26.924	+ 1.3923	N. 51 30 21.74	- 0.611
σ Octantis - - -	6	17 55 25.454	109.6733	S. 89 16 42.99	- 0.266
μ Sagittarii - - -	4	18 5 37.720	+ 3.5844	S. 21 5 27.76	+ 0.488
δ Ursæ Minoris - -	4.5	18 16 12.977	- 19.3725	N. 86 36 12.90	1.429
α Lyræ (<i>Vega</i>)	1	18 32 19.973	+ 2.0304	N. 38 39 32.55	+ 3.108
β Lyræ - - -	var.	18 45 3.441	2.2120	N. 33 12 23.72	3.892
ζ Aquilæ - - -	3	18 59 9.398	2.7520	N. 13 39 50.14	5.048
ω Aquilæ - - -	6.5	19 11 25.909	2.8140	N. 11 21 9.07	6.170
δ Aquilæ - - -	3.4	19 18 38.374	+ 3.0241	N. 2 50 46.81	+ 6.848
λ Sagittarii - - -	5.4	19 28 25.530	3.6563	S. 25 10 48.35	7.569
γ Aquilæ - - -	3	19 39 47.548	2.8515	N. 10 17 3.38	8.464
α Aquilæ (<i>Altair</i>)	1.2	19 44 8.780	+ 2.9274	N. 8 30 41.88	+ 9.186

MEAN PLACES FOR JANUARY ^{od} 597. (See page 329.)

Star's Name.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
		^h ^m ^s	^s	[°] ['] ["]	["]
β Aquilæ - - -	4	19 48 37.871	+ 2.9465	N. 6 4 10.12	+ 8.680
λ Ursæ Minoris - -	5	20 0 7.407	- 57.5172	N.88 54 5.41	10.009
α^1 Capricorni - - -	3.4	20 10 30.299	+ 3.3329	S. 12 57 50.04	10.815
α Pavonis - - -	2	20 14 52.402	4.7990	S. 57 10 0.31	11.105
ρ Capricorni - - -	5	20 21 5.828	+ 3.4263	S. 18 15 37.93	+ 11.577
α Cygni - - -	2.1	20 36 47.702	2.0428	N. 44 47 44.89	12.676
32 Vulpeculæ - - -	5.6	20 48 45.831	2.5536	N. 27 32 31.47	13.473
61 ¹ Cygni - - -	5.6	21 0 47.908	2.6735	N. 38 4 56.45	17.477
ζ Cygni - - -	3	21 7 8.866	+ 2.5479	N. 29 40 13.87	+ 14.548
α Cephei - - -	3.2	21 15 19.888	1.4380	N. 62 0 35.74	15.105
β Aquarii - - -	3	21 24 23.767	3.1629	S. 6 10 3.60	15.614
β Cephei - - -	3	21 26 53.580	0.8018	N. 69 57 50.02	15.703
α Pegasi - - -	2.3	21 37 30.359	+ 2.9479	N. 9 15 10.81	+ 16.305
16 Pegasi - - -	5.6	21 46 52.515	2.7259	N. 25 17 11.01	16.759
α Aquarii - - -	3	21 58 47.780	3.0826	S. 0 58 45.66	17.304
α Gruis - - -	2	21 59 38.849	3.8171	S. 47 37 3.07	17.173
θ Aquarii - - -	4.5	22 9 39.275	+ 3.1697	S. 8 27 32.88	+ 17.743
η Aquarii - - -	4.3	22 28 21.971	3.0821	S. 0 49 2.71	18.418
ζ Pegasi - - -	3.4	22 34 40.674	2.9870	N. 10 7 20.72	18.685
α Pis. Aus. (<i>Fomalhaut</i>)	1.2	22 50 7.665	3.3300	S. 30 20 32.13	18.957
α Pegasi (<i>Markab</i>)	2	22 57 59.238	+ 2.9829	N. 14 28 27.20	+ 19.305
γ Piscium - - -	4	23 10 6.887	3.1061	N. 2 32 22.95	19.568
κ Piscium - - -	5.4	23 19 57.637	3.0746	N. 0 30 41.42	19.631
ι Piscium - - -	4.5	23 32 57.358	3.0841	N. 4 53 21.69	19.465
γ Cephei - - -	3.4	23 33 47.464	+ 2.3975	N. 76 52 24.40	+ 20.076
δ Sculptoris - - -	4.5	23 41 50.212	3.1329	S. 28 52 54.89	19.923
ω Piscium - - -	4	23 52 19.733	+ 3.0774	N. 6 6 37.37	+ 19.915

FORMULÆ OF REDUCTION.

ACCORDING TO THE LATE PROFESSOR BESSEL.

1.—*Adopting the Notation of the British Association Catalogue and the Coefficients of Professor Peters (Numerus Constans Nutationis, p. 75).*

$$A = -20^{\circ}4451 \cos \omega \cos \odot$$

$$B = -20^{\circ}4451 \sin \odot$$

$$C = t - 0^{\circ}02519 \sin 2 \odot - 0^{\circ}34241 \sin \mathfrak{Q} + 0^{\circ}00410 \sin 2 \mathfrak{Q} - 0^{\circ}00405 \sin 2 \mathfrak{Q}$$

$$D = -0^{\circ}5507 \cos 2 \odot - 9^{\circ}2237 \cos \mathfrak{Q} + 0^{\circ}0895 \cos 2 \mathfrak{Q} - 0^{\circ}0885 \cos 2 \mathfrak{Q}$$

$$a = \cos \alpha \sec \delta$$

$$b = \sin \alpha \sec \delta$$

$$c = 46^{\circ}0807 + 20^{\circ}0551 \sin \alpha \tan \delta$$

$$d = \cos \alpha \tan \delta$$

$$a' = \tan \omega \cos \delta - \sin \alpha \sin \delta$$

$$b' = \cos \alpha \sin \delta$$

$$c' = 20^{\circ}0551 \cos \alpha$$

$$d' = -\sin \alpha$$

Δc = the annual proper motion in Right Ascension, in *arc*.

$\Delta c'$ = the annual proper motion in Declination.

Where t denotes the time reckoned from the moment when the Sun's mean longitude was 280° (Jan. $0^d \cdot 597$) and expressed in fractional parts of a tropical year, \odot the Sun's and \mathfrak{Q} the Moon's true longitude, \mathfrak{Q} the mean longitude of the Moon's node, and ω the obliquity of the Ecliptic, each for the time t : α the mean Right Ascension, in *arc*, and δ the mean Declination for the beginning of the year. Then, for the time represented by t ,

$$\text{Apparent R.A., in arc,} = \alpha + Aa + Bb + Cc + Dd + t\Delta c.$$

$$\text{Apparent Dec.} \quad - \quad - \quad - \quad = \delta + Aa' + Bb' + Cc' + Dd' + t\Delta c'.$$

2.—*Using the same Notation and Coefficients, and assuming*

$$46^{\circ}0807 C = f$$

$$B = h \cos H$$

$$20^{\circ}0551 C = g \cos G$$

$$A = h \sin H$$

$$D = g \sin G$$

$$A \tan \omega = i$$

$$\text{Apparent R.A., in arc,} = \alpha + f + t\Delta c$$

$$+ g \sin (G + \alpha) \tan \delta + h \sin (H + \alpha) \sec \delta$$

$$\text{Apparent Dec.} \quad - \quad - \quad - \quad = \delta + i \cos \delta + t\Delta c'$$

$$+ g \cos (G + \alpha) + h \cos (H + \alpha) \sin \delta$$

CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

Month and Day.	At Greenwich Mean Midnight.					
	<i>f</i>	<i>g</i>	<i>G</i>	<i>h</i>	<i>H</i>	<i>i</i>
Jan. 1	+13° 71	+ 8° 26	43 48	+20° 38	349 58	- 1° 55
6	14° 48	8° 51	42 11	20° 38	345 15	2° 25
11	15° 24	8° 74	40 37	20° 24	340 30	2° 93
16	15° 97	8° 96	39 7	20° 13	335 43	3° 59
21	+16° 67	+ 9° 17	37 42	+20° 00	330 52	- 4° 23
26	17° 33	9° 36	36 21	19° 86	325 57	4° 83
31	17° 96	9° 55	35 5	19° 72	320 59	5° 39
Feb. 5	18° 56	9° 73	33 54	19° 57	315 57	5° 91
10	+19° 12	+ 9° 90	32 49	+19° 42	310 51	- 6° 38
15	19° 64	10° 06	31 51	19° 28	305 41	6° 80
20	20° 13	10° 22	30 58	19° 15	300 27	7° 16
25	20° 59	10° 37	30 12	19° 03	295 9	7° 47
Mar. 1	+21° 03	+10° 52	29 33	+18° 93	289 49	- 7° 73
6	21° 44	10° 67	29 0	18° 83	284 26	7° 92
11	21° 84	10° 82	28 33	18° 79	279 1	8° 05
16	22° 23	10° 98	28 12	18° 76	273 37	8° 13
21	+22° 61	+11° 14	27 56	+18° 76	268 12	- 8° 14
26	23° 00	11° 31	27 45	18° 78	262 49	8° 08
31	23° 40	11° 49	27 38	18° 83	257 28	7° 97
April 5	23° 80	11° 69	27 34	18° 90	252 9	7° 80
10	+24° 23	+11° 89	27 32	+18° 99	246 55	- 7° 58
15	24° 68	11° 11	27 32	19° 10	241 44	7° 30
20	25° 16	12° 35	27 33	19° 22	236 38	6° 97
25	25° 67	12° 60	27 34	19° 36	231 38	6° 59
30	+26° 21	+12° 87	27 34	+19° 50	226 42	- 6° 16
May 5	26° 78	13° 15	27 33	19° 64	221 51	5° 68
10	27° 38	13° 44	27 31	19° 78	217 4	5° 17
15	28° 02	13° 74	27 26	19° 91	212 23	4° 63
20	+28° 68	+14° 05	27 18	+20° 04	207 46	- 4° 05
25	29° 38	14° 37	27 8	20° 15	203 12	3° 45
30	30° 09	14° 69	26 55	20° 25	198 42	2° 82
June 4	30° 84	15° 01	26 39	20° 33	194 15	2° 17
9	+31° 59	+15° 34	26 21	+20° 39	189 49	- 1° 51
14	32° 36	15° 67	26 0	20° 43	185 26	0° 84
19	33° 13	15° 99	25 36	20° 45	181 3	- 0° 16
24	33° 90	16° 30	25 11	20° 44	176 40	+ 0° 51
29	34° 67	16° 61	24 44	20° 41	172 18	1° 18
July 4	+35° 43	+16° 91	24 15	+20° 36	167 54	+ 1° 85

CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

Month and Day.		At Greenwich Mean Midnight.					
		<i>f</i>	<i>g</i>	<i>G</i>	<i>h</i>	<i>H</i>	<i>i</i>
July	4	+35°43	+16°91	24 15	+20°36	167 54	+ 1°85
	9	36°18	17°20	23 46	20°29	163 28	2°51
	14	36°90	17°48	23 16	20°20	159 1	3°14
	19	37°60	17°75	22 45	20°10	154 30	3°75
Aug.	24	+38°28	+18°00	22 15	+19°98	149 57	+ 4°34
	29	38°93	18°24	21 45	19°85	145 20	4°90
	3	39°54	18°47	21 16	19°71	140 38	5°42
	8	40°13	18°68	20 49	19°57	135 52	5°91
	13	+40°68	+18°89	20 23	+19°43	131 2	+ 6°35
	18	41°19	19°08	19 59	19°29	126 7	6°76
	23	41°68	19°26	19 37	19°16	121 7	7°12
	28	42°14	19°44	19 18	19°05	116 2	7°43
Sept.	2	+42°58	+19°60	19 1	+18°95	110 52	+ 7°68
	7	42°99	19°76	18 47	18°86	105 41	7°88
	12	43°39	19°93	18 36	18°80	100 25	8°02
	17	43°77	20°08	18 28	18°77	95 7	8°11
Oct.	22	+44°15	+20°25	18 23	+18°76	89 47	+ 8°14
	27	44°53	20°42	18 20	18°77	84 26	8°11
	2	44°91	20°59	18 20	18°81	79 5	8°02
	7	45°31	20°78	18 22	18°87	73 45	7°86
	12	+45°72	+20°97	18 25	+18°96	68 27	+ 7°65
	17	46°15	21°18	18 30	19°07	63 11	7°38
	22	46°61	21°40	18 36	19°19	57 57	7°06
	27	47°10	21°64	18 43	19°32	52 48	6°68
Nov.	1	+47°62	+21°90	18 49	+19°46	47 42	+ 6°25
	6	48°17	22°17	18 56	19°61	42 40	5°77
	11	48°76	22°45	19 1	19°76	37 41	5°24
	16	49°39	22°74	19 4	19°90	32 46	4°68
Dec.	21	+50°05	+23°05	19 7	+20°04	27 55	+ 4°07
	26	50°74	23°37	19 7	20°16	23 6	3°43
	1	51°46	23°70	19 5	20°26	18 21	2°77
	6	52°20	24°03	19 1	20°34	13 37	2°08
	11	+52°96	+24°36	18 55	+20°40	8 55	+ 1°38
	16	53°73	24°70	18 47	20°43	4 15	+ 0°66
	21	54°51	25°03	18 36	20°44	359 34	— 0°06
	26	55°28	25°35	18 23	20°43	354 54	0°79
	31	+56°05	+25°67	18 9	+20°39	350 12	— 1°51

APPARENT PLACES OF α URSÆ MINORIS (*Polaris*),
FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h I 9	^m 88 35	^h I 9	^m 88 35	^h I 8	^m 88 35	^h I 8	^m 88 35	
1	46 ^s .38	28 [°] .1	20 ^s .20	27 [°] .9	60 ^s .39	22 [°] .5	51 ^s .60	13 [°] .3	1
2	45 ^s .55	28 [°] .3	19 ^s .39	27 [°] .8	59 ^s .89	22 [°] .3	51 ^s .57	13 [°] .0	2
3	44 ^s .72	28 [°] .4	18 ^s .59	27 [°] .7	59 ^s .39	22 [°] .0	51 ^s .56	12 [°] .7	3
4	43 ^s .89	28 [°] .5	17 ^s .80	27 [°] .6	58 ^s .90	21 [°] .8	51 ^s .57	12 [°] .4	4
5	43 ^s .05	28 [°] .5	17 ^s .01	27 [°] .5	58 ^s .43	21 [°] .5	51 ^s .60	12 [°] .0	5
6	42 ^s .20	28 [°] .6	16 ^s .23	27 [°] .4	57 ^s .97	21 [°] .3	51 ^s .64	11 [°] .7	6
7	41 ^s .35	28 [°] .6	15 ^s .46	27 [°] .3	57 ^s .53	21 [°] .0	{51 ^s .62}	{11 [°] .4}	7
8	40 ^s .50	28 [°] .7	14 ^s .70	27 [°] .1	57 ^s .10	20 [°] .7	51 ^s .86	10 [°] .8	8
9	39 ^s .65	28 [°] .7	13 ^s .94	26 [°] .9	56 ^s .69	20 [°] .4	51 ^s .97	10 [°] .5	9
10	38 ^s .79	28 [°] .7	13 ^s .19	26 [°] .7	56 ^s .29	20 [°] .1	52 ^s .10	10 [°] .2	10
11	37 ^s .93	28 [°] .8	12 ^s .45	26 [°] .6	55 ^s .90	19 [°] .8	52 ^s .24	9 [°] .9	11
12	37 ^s .07	28 [°] .8	11 ^s .72	26 [°] .4	55 ^s .53	19 [°] .5	52 ^s .39	9 [°] .6	12
13	36 ^s .21	28 [°] .8	11 ^s .00	26 [°] .2	55 ^s .18	19 [°] .2	52 ^s .56	9 [°] .3	13
14	35 ^s .35	28 [°] .8	10 ^s .29	26 [°] .1	54 ^s .84	18 [°] .9	52 ^s .75	9 [°] .0	14
15	34 ^s .50	28 [°] .8	9 ^s .59	25 [°] .9	54 ^s .52	18 [°] .6	52 ^s .97	8 [°] .7	15
16	33 ^s .64	28 [°] .7	8 ^s .90	25 [°] .7	54 ^s .23	18 [°] .3	53 ^s .20	8 [°] .4	16
17	32 ^s .79	28 [°] .7	8 ^s .22	25 [°] .5	53 ^s .95	18 [°] .0	53 ^s .44	8 [°] .1	17
18	31 ^s .93	28 [°] .7	7 ^s .54	25 [°] .3	53 ^s .68	17 [°] .7	53 ^s .69	7 [°] .8	18
19	31 ^s .07	28 [°] .7	6 ^s .88	25 [°] .1	53 ^s .42	17 [°] .4	53 ^s .96	7 [°] .5	19
20	30 ^s .22	28 [°] .7	6 ^s .23	24 [°] .9	53 ^s .18	17 [°] .1	54 ^s .24	7 [°] .2	20
21	29 ^s .36	28 [°] .7	5 ^s .59	24 [°] .7	52 ^s .96	16 [°] .8	54 ^s .54	6 [°] .9	21
22	28 ^s .51	28 [°] .6	4 ^s .96	24 [°] .5	52 ^s .75	16 [°] .6	54 ^s .85	6 [°] .6	22
23	27 ^s .66	28 [°] .6	4 ^s .34	24 [°] .3	52 ^s .56	16 [°] .3	55 ^s .18	6 [°] .3	23
24	26 ^s .81	28 [°] .6	3 ^s .74	24 [°] .1	52 ^s .39	16 [°] .0	55 ^s .53	6 [°] .0	24
25	25 ^s .97	28 [°] .5	3 ^s .15	23 [°] .9	52 ^s .25	15 [°] .6	55 ^s .89	5 [°] .7	25
26	25 ^s .13	28 [°] .5	2 ^s .57	23 [°] .7	52 ^s .12	15 [°] .2	56 ^s .27	5 [°] .4	26
27	24 ^s .29	28 [°] .4	2 ^s .00	23 [°] .4	52 ^s .00	14 [°] .9	56 ^s .66	5 [°] .1	27
28	23 ^s .46	28 [°] .4	1 ^s .44	23 [°] .1	51 ^s .88	14 [°] .6	57 ^s .06	4 [°] .8	28
29	22 ^s .64	28 [°] .3	0 ^s .90	22 [°] .8	51 ^s .78	14 [°] .3	57 ^s .48	4 [°] .5	29
30	21 ^s .82	28 [°] .2	0 ^s .39	22 [°] .5	51 ^s .70	14 [°] .0	57 ^s .91	4 [°] .3	30
31	21 ^s .01	28 [°] .1	- -	- -	51 ^s .64	13 [°] .7	58 ^s .36	4 [°] .0	31
32	20 ^s .20	27 [°] .9	- -	- -	51 ^s .60	13 [°] .3	- -	- -	32

APPARENT PLACES OF α URSÆ MINORIS (*Polaris*), FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	MAY.		JUNE.		JULY.		AUGUST.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h ^m I 8	[°] ['] 88 34	^h ^m I 9	[°] ['] 88 34	^h ^m I 9	[°] ['] 88 34	^h ^m I 10	[°] ['] 88 35	
1	58 ^s .36	64 ^s .0	18 ^s .13	57 ^s .8	44 ^s .01	56 ^s .4	11 ^s .12	0 ^s .0	1
2	58 ^s .83	63 ^s .7	18 ^s .93	57 ^s .6	44 ^s .91	56 ^s .4	11 ^s .93	0 ^s .2	2
3	59 ^s .31	63 ^s .4	19 ^s .73	57 ^s .5	45 ^s .82	56 ^s .4	12 ^s .74	0 ^s .4	3
4	59 ^s .80	63 ^s .1	20 ^s .54	57 ^s .4	46 ^s .72	56 ^s .5	13 ^s .54	0 ^s .6	4
5	60 ^s .30	62 ^s .8	21 ^s .35	57 ^s .3	47 ^s .62	56 ^s .5	14 ^s .33	0 ^s .8	5
6	60 ^s .81	62 ^s .6	22 ^s .17	57 ^s .2	48 ^s .53	56 ^s .6	15 ^s .12	1 ^s .0	6
7	61 ^s .34	62 ^s .4	22 ^s .99	57 ^s .1	49 ^s .43	56 ^s .6	15 ^s .90	1 ^s .2	7
8	61 ^s .88	62 ^s .2	23 ^s .82	57 ^s .0	50 ^s .33	56 ^s .7	16 ^s .67	1 ^s .4	8
9	62 ^s .43	62 ^s .0	24 ^s .66	56 ^s .9	51 ^s .23	56 ^s .8	17 ^s .44	1 ^s .6	9
10	62 ^s .99	61 ^s .8	25 ^s .50	56 ^s .8	52 ^s .13	56 ^s .9	18 ^s .20	1 ^s .8	10
11	63 ^s .57	61 ^s .6	26 ^s .34	56 ^s .7	53 ^s .02	57 ^s .0	18 ^s .95	2 ^s .0	11
12	64 ^s .16	61 ^s .4	27 ^s .19	56 ^s .6	53 ^s .91	57 ^s .1	19 ^s .70	2 ^s .3	12
13	64 ^s .76	61 ^s .2	28 ^s .05	56 ^s .6	54 ^s .80	57 ^s .2	20 ^s .44	2 ^s .6	13
14	65 ^s .37	61 ^s .0	28 ^s .91	56 ^s .5	55 ^s .69	57 ^s .3	21 ^s .17	2 ^s .8	14
15	66 ^s .00	60 ^s .8	29 ^s .78	56 ^s .5	56 ^s .58	57 ^s .4	21 ^s .89	3 ^s .0	15
16	66 ^s .64	60 ^s .6	30 ^s .65	56 ^s .4	57 ^s .47	57 ^s .5	22 ^s .60	3 ^s .3	16
17	67 ^s .29	60 ^s .4	31 ^s .52	56 ^s .4	58 ^s .35	57 ^s .6	23 ^s .31	3 ^s .6	17
18	67 ^s .94	60 ^s .2	32 ^s .40	56 ^s .3	59 ^s .23	57 ^s .7	24 ^s .01	3 ^s .9	18
19	68 ^s .60	60 ^s .0	33 ^s .28	56 ^s .3	60 ^s .10	57 ^s .8	24 ^s .70	4 ^s .2	19
20	69 ^s .28	59 ^s .8	34 ^s .16	56 ^s .3	60 ^s .97	57 ^s .9	25 ^s .38	4 ^s .5	20
21	69 ^s .97	59 ^s .6	35 ^s .04	56 ^s .3	61 ^s .84	58 ^s .0	26 ^s .05	4 ^s .8	21
22	70 ^s .67	59 ^s .4	35 ^s .93	56 ^s .3	62 ^s .71	58 ^s .1	26 ^s .72	5 ^s .1	22
23	71 ^s .38	59 ^s .2	36 ^s .82	56 ^s .3	63 ^s .57	58 ^s .2	27 ^s .37	5 ^s .4	23
24	72 ^s .09	59 ^s .0	37 ^s .71	56 ^s .3	64 ^s .43	58 ^s .4	28 ^s .01	5 ^s .7	24
25	72 ^s .81	58 ^s .8	38 ^s .61	56 ^s .3	65 ^s .28	58 ^s .6	28 ^s .65	6 ^s .0	25
26	73 ^s .54	58 ^s .6	39 ^s .51	56 ^s .3	66 ^s .13	58 ^s .8	29 ^s .28	6 ^s .3	26
27	74 ^s .28	58 ^s .4	40 ^s .41	56 ^s .3	66 ^s .97	59 ^s .0	29 ^s .90	6 ^s .6	27
28	75 ^s .03	58 ^s .3	41 ^s .31	56 ^s .3	67 ^s .81	59 ^s .2	30 ^s .51	6 ^s .9	28
29	75 ^s .79	58 ^s .2	42 ^s .21	56 ^s .3	68 ^s .64	59 ^s .4	31 ^s .11	7 ^s .2	29
30	76 ^s .56	58 ^s .1	43 ^s .11	56 ^s .4	69 ^s .47	59 ^s .6	31 ^s .70	7 ^s .5	30
31	77 ^s .34	57 ^s .9	44 ^s .01	56 ^s .4	70 ^s .30	59 ^s .8	32 ^s .28	7 ^s .8	31
32	78 ^s .13	57 ^s .8	" "	" "	71 ^s .12	60 ^s .0	32 ^s .85	8 ^s .1	32

APPARENT PLACES of α URSÆ MINORIS (*Polaris*),
FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h I	^m IO	[°] 88	['] 35	^h I	^m IO	[°] 88	['] 35	
1	32 ^s 85	8 ["] 1	44 ^s 69	18 ["] 3	44 ^s 80	30 ["] 0	32 ^s 51	39 ["] 5	1
2	33 ^s 41	8 ["] 4	44 ^s 89	18 ["] 7	44 ^s 58	30 ["] 4	31 ^s 90	39 ["] 8	2
3	33 ^s 95	8 ["] 7	45 ^s 09	19 ["] 1	44 ^s 35	30 ["] 7	31 ^s 28	40 ["] 1	3
4	34 ^s 49	9 ["] 0	45 ^s 27	19 ["] 5	44 ^s 10	31 ["] 1	30 ^s 66	40 ["] 3	4
5	35 ^s 02	9 ["] 3	45 ^s 44	19 ["] 9	43 ^s 84	31 ["] 4	30 ^s 03	40 ["] 6	5
6	35 ^s 54	9 ["] 6	45 ^s 59	20 ["] 3	43 ^s 57	31 ["] 8	29 ^s 39	40 ["] 8	6
7	36 ^s 05	9 ["] 9	45 ^s 73	20 ["] 7	43 ^s 29	32 ["] 1	28 ^s 74	41 ["] 1	7
8	36 ^s 54	10 ["] 2	45 ^s 86	21 ["] 0	42 ^s 99	32 ["] 5	28 ^s 07	41 ["] 4	8
9	37 ^s 02	10 ["] 6	45 ^s 97	21 ["] 4	42 ^s 67	32 ["] 8	27 ^s 39	41 ["] 6	9
10	37 ^s 49	10 ["] 9	46 ^s 07	21 ["] 8	42 ^s 34	33 ["] 2	26 ^s 70	41 ["] 8	10
11	37 ^s 95	11 ["] 3	46 ^s 16	22 ["] 2	42 ^s 00	33 ["] 5	26 ^s 00	42 ["] 0	11
12	38 ^s 41	11 ["] 6	46 ^s 23	22 ["] 6	41 ^s 65	33 ["] 9	25 ^s 29	42 ["] 2	12
13	38 ^s 85	12 ["] 0	46 ^s 29	22 ["] 9	41 ^s 29	34 ["] 2	24 ^s 58	42 ["] 4	13
14	39 ^s 28	12 ["] 3	46 ^s 34	23 ["] 3	40 ^s 91	34 ["] 5	23 ^s 86	42 ["] 6	14
15	39 ^s 69	12 ["] 7	46 ^s 37	23 ["] 7	40 ^s 52	34 ["] 9	23 ^s 13	42 ["] 8	15
16	40 ^s 09	13 ["] 0	46 ^s 38	24 ["] 1	40 ^s 11	35 ["] 2	22 ^s 39	43 ["] 0	16
17	40 ^s 48	13 ["] 4	46 ^s 39	24 ["] 5	39 ^s 69	35 ["] 5	21 ^s 64	43 ["] 2	17
18	40 ^s 87	13 ["] 7	46 ^s 38	24 ["] 8	39 ^s 26	35 ["] 8	20 ^s 88	43 ["] 4	18
19	41 ^s 24	14 ["] 1	46 ^s 36	25 ["] 2	38 ^s 81	36 ["] 1	20 ^s 12	43 ["] 6	19
20	41 ^s 60	14 ["] 5	46 ^s 32	25 ["] 5	38 ^s 35	36 ["] 4	19 ^s 35	43 ["] 8	20
21	41 ^s 94	14 ["] 8	46 ^s 27	25 ["] 9	37 ^s 88	36 ["] 7	18 ^s 58	44 ["] 0	21
22	42 ^s 27	15 ["] 2	46 ^s 20	26 ["] 2	37 ^s 40	37 ["] 0	17 ^s 80	44 ["] 1	22
23	42 ^s 59	15 ["] 5	46 ^s 12	26 ["] 6	36 ^s 90	37 ["] 3	17 ^s 01	44 ["] 2	23
24	42 ^s 90	15 ["] 9	46 ^s 03	27 ["] 0	36 ^s 39	37 ["] 6	16 ^s 21	44 ["] 3	24
25	43 ^s 19	16 ["] 3	45 ^s 92	27 ["] 4	35 ^s 87	37 ["] 9	15 ^s 40	44 ["] 4	25
26	43 ^s 47	16 ["] 6	45 ^s 80	27 ["] 8	35 ^s 34	38 ["] 2	14 ^s 59	44 ["] 5	26
27	43 ^s 74	17 ["] 0	45 ^s 67	28 ["] 2	34 ^s 80	38 ["] 5	13 ^s 77	44 ["] 6	27
28	44 ^s 00	17 ["] 3	45 ^s 52	28 ["] 5	34 ^s 25	38 ["] 8	12 ^s 95	44 ["] 7	28
29	44 ^s 25	17 ["] 6	45 ^s 36	28 ["] 9	33 ^s 68	39 ["] 0	12 ^s 13	44 ["] 8	29
30	44 ^s 48	18 ["] 0	45 ^s 19	29 ["] 3	33 ^s 10	39 ["] 3	11 ^s 30	44 ["] 9	30
31	44 ^s 69	18 ["] 3	45 ^s 00	29 ["] 6	32 ^s 51	39 ["] 5	10 ^s 46	45 ["] 0	31
32	-	-	44 ^s 80	30 ["] 0	-	-	9 ^s 63	45 ["] 1	32

APPARENT PLACES OF δ URSÆ MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h ^m 18 15	[°] ['] 86 36	^h ^m 18 15	[°] ['] 86 36	^h ^m 18 15	[°] ['] 86 35	^h ^m 18 16	[°] ['] 86 35	
1	44° 84	16° 7	47° 94	6° 9	56° 03	60° 9	7° 13	59° 9	1
2	44° 84	16° 3	48° 15	6° 6	56° 37	60° 8	7° 48	60° 0	2
3	44° 83	15° 9	48° 36	6° 4	56° 71	60° 7	7° 83	60° 1	3
4	44° 84	15° 6	48° 58	6° 1	57° 05	60° 6	8° 19	60° 2	4
5	44° 85	15° 3	48° 80	5° 8	57° 40	60° 5	8° 54	60° 3	5
6	44° 87	15° 0	49° 03	5° 6	57° 75	60° 5	8° 89	60° 4	6
7	44° 90	14° 7	49° 27	5° 3	58° 10	60° 4	9° 24	60° 5	7
8	44° 94	14° 4	49° 52	5° 1	58° 45	60° 3	9° 59	60° 6	8
9	44° 98	14° 0	49° 77	4° 8	58° 80	60° 2	9° 93	60° 7	9
10	45° 03	13° 7	50° 02	4° 6	59° 16	60° 1	10° 27	60° 8	10
11	45° 09	13° 3	50° 28	4° 3	59° 51	60° 0	10° 61	60° 9	11
12	45° 16	13° 0	50° 54	4° 1	59° 87	59° 9	10° 94	61° 0	12
13	45° 23	12° 7	50° 81	3° 9	60° 23	59° 9	11° 27	61° 1	13
14	45° 31	12° 4	51° 08	3° 7	60° 59	59° 8	11° 60	61° 2	14
15	45° 40	12° 0	51° 36	3° 5	60° 95	59° 8	11° 92	61° 3	15
16	45° 49	11° 7	51° 64	3° 3	61° 32	59° 7	12° 24	61° 5	16
17	45° 59	11° 4	51° 93	3° 1	61° 68	59° 7	12° 56	61° 7	17
18	45° 70	11° 1	52° 22	2° 9	62° 04	59° 7	12° 88	61° 9	18
19	45° 82	10° 8	52° 52	2° 7	62° 41	59° 6	13° 19	62° 1	19
20	45° 94	10° 5	52° 82	2° 5	62° 77	59° 6	13° 50	62° 3	20
21	46° 07	10° 2	53° 12	2° 3	63° 14	59° 6	13° 80	62° 5	21
22	46° 20	9° 9	53° 43	2° 1	63° 51	59° 6	14° 10	62° 7	22
23	46° 34	9° 6	53° 74	1° 9	63° 88	59° 6	14° 40	62° 9	23
24	46° 49	9° 3	54° 06	1° 7	64° 24	59° 7	14° 69	63° 1	24
25	46° 66	9° 0	54° 38	1° 5	64° 60	59° 7	14° 98	63° 3	25
26	46° 83	8° 7	54° 70	1° 3	64° 97	59° 7	15° 26	63° 5	26
27	47° 00	8° 4	55° 03	1° 2	65° 33	59° 8	15° 54	63° 7	27
28	47° 17	8° 1	55° 36	1° 1	65° 69	59° 8	15° 81	63° 9	28
29	47° 35	7° 8	55° 69	1° 0	66° 05	59° 8	16° 09	64° 1	29
30	47° 54	7° 5	56° 03	0° 9	66° 41	59° 9	16° 36	64° 3	30
31	47° 74	7° 2	- -	- -	66° 77	59° 9	16° 63	64° 5	31
32	47° 94	6° 9	- -	- -	67° 13	59° 9	- -	- -	32

APPARENT PLACES OF δ URSÆ MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	MAY.		JUNE.		JULY.		AUGUST.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h ₁₈ ^m ₁₆	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₆	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₆	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₆	[°] ₈₆ ['] ₃₆	
1	^s ₁₆ ·63	["] ₄ ·5	^s ₂₂ ·04	["] ₁₃ ·2	^s ₂₁ ·66	["] ₂₂ ·9	^s ₁₅ ·56	["] ₃₁ ·9	1
2	16·88	4·7	22·12	13·5	21·55	23·2	15·28	32·2	2
3	17·13	4·9	22·19	13·8	21·43	23·5	14·99	32·4	3
4	17·37	5·1	22·26	14·1	21·31	23·9	14·70	32·7	4
5	17·61	5·3	22·32	14·4	21·18	24·2	14·41	32·9	5
6	17·85	5·5	22·38	14·7	21·04	24·5	14·11	33·2	6
7	18·08	5·8	22·43	15·1	20·90	24·9	13·81	33·4	7
8	18·31	6·1	22·48	15·4	20·76	25·2	13·50	33·7	8
9	18·53	6·4	22·51	15·7	20·61	25·5	13·19	34·0	9
10	18·75	6·7	22·54	16·1	20·45	25·8	12·88	34·2	10
11	18·96	7·0	22·56	16·5	20·28	26·1	12·56	34·4	11
12	19·17	7·2	22·57	16·8	20·11	26·4	12·23	34·6	12
13	19·37	7·5	22·58	17·2	19·93	26·7	11·90	34·8	13
14	19·57	7·8	22·59	17·5	19·75	27·0	11·57	35·0	14
15	19·76	8·1	22·59	17·8	19·56	27·3	11·24	35·2	15
16	19·94	8·3	22·58	18·1	19·37	27·6	10·90	35·4	16
17	20·12	8·6	22·56	18·4	19·17	27·9	10·56	35·6	17
18	20·29	8·9	22·53	18·7	18·96	28·2	10·21	35·8	18
19	20·45	9·2	22·50	19·0	18·75	28·5	9·86	36·0	19
20	20·61	9·5	22·47	19·4	18·54	28·8	9·50	36·2	20
21	20·76	9·8	22·42	19·7	18·32	29·0	9·14	36·4	21
22	20·90	10·1	22·37	20·0	18·10	29·3	8·78	36·6	22
23	21·04	10·4	22·32	20·4	17·87	29·6	8·42	36·8	23
24	21·18	10·7	22·26	20·7	17·63	29·8	8·05	37·0	24
25	21·31	11·0	22·19	21·0	17·39	30·1	7·68	37·2	25
26	21·43	11·3	22·12	21·3	17·14	30·4	7·31	37·3	26
27	21·55	11·6	22·04	21·6	16·89	30·7	6·93	37·4	27
28	21·66	11·9	21·96	22·0	16·63	31·0	6·55	37·5	28
29	21·77	12·2	21·87	22·3	16·37	31·2	6·17	37·7	29
30	21·87	12·5	21·77	22·7	16·10	31·5	5·79	37·8	30
31	21·96	12·8	21·66	22·9	15·83	31·7	5·40	38·0	31
32	22·04	13·2	- -	- -	15·56	31·9	5·01	38·1	32

APPARENT PLACES OF δ URSÆ MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h ₁₈ ^m ₁₅	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₅	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₅	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₅	[°] ₈₆ ['] ₃₆	
1	65° 01'	38° 1'	52° 58'	39° 8'	40° 05'	37° 2'	30° 95'	30° 2'	1
2	64° 62'	38° 3'	52° 16'	39° 8'	39° 68'	37° 0'	30° 73'	29° 9'	2
3	64° 22'	38° 4'	51° 74'	39° 7'	39° 32'	36° 8'	30° 52'	29° 6'	3
4	63° 83'	38° 5'	51° 31'	39° 7'	38° 96'	36° 6'	30° 31'	29° 3'	4
5	63° 43'	38° 6'	50° 89'	39° 7'	38° 60'	36° 4'	30° 10'	29° 0'	5
6	63° 03'	38° 7'	50° 47'	39° 7'	38° 25'	36° 2'	29° 90'	28° 7'	6
7	62° 63'	38° 8'	50° 05'	39° 7'	37° 90'	36° 0'	29° 71'	28° 4'	7
8	62° 22'	38° 9'	49° 63'	39° 6'	37° 56'	35° 8'	29° 53'	28° 1'	8
9	61° 81'	39° 0'	49° 21'	39° 6'	37° 22'	35° 6'	29° 35'	27° 8'	9
10	61° 40'	39° 1'	48° 79'	39° 6'	36° 88'	35° 4'	29° 18'	27° 5'	10
11	60° 99'	39° 1'	48° 37'	39° 5'	36° 55'	35° 2'	29° 02'	27° 2'	11
12	60° 58'	39° 2'	47° 96'	39° 5'	36° 22'	35° 0'	28° 86'	26° 9'	12
13	60° 17'	39° 3'	47° 54'	39° 4'	35° 89'	34° 8'	28° 71'	26° 6'	13
14	59° 75'	39° 4'	47° 13'	39° 3'	35° 57'	34° 6'	28° 57'	26° 3'	14
15	59° 34'	39° 5'	46° 72'	39° 2'	35° 26'	34° 4'	28° 43'	25° 9'	15
16	58° 92'	39° 6'	46° 31'	39° 2'	34° 95'	34° 1'	28° 30'	25° 6'	16
17	58° 51'	39° 6'	45° 90'	39° 1'	34° 65'	33° 9'	28° 18'	25° 2'	17
18	58° 09'	39° 7'	45° 49'	39° 0'	34° 35'	33° 6'	28° 06'	24° 9'	18
19	57° 67'	39° 7'	45° 08'	38° 9'	34° 05'	33° 4'	27° 95'	24° 5'	19
20	57° 25'	39° 7'	44° 68'	38° 8'	33° 76'	33° 1'	27° 85'	24° 2'	20
21	56° 82'	39° 8'	44° 28'	38° 7'	33° 48'	32° 9'	27° 76'	23° 8'	21
22	56° 40'	39° 8'	43° 88'	38° 6'	33° 20'	32° 6'	27° 68'	23° 5'	22
23	55° 97'	39° 8'	43° 48'	38° 5'	32° 93'	32° 4'	27° 60'	23° 2'	23
24	55° 55'	39° 9'	43° 09'	38° 4'	32° 66'	32° 1'	{27° 48'}	{22° 8'}	24
25	55° 13'	39° 9'	42° 70'	38° 3'	32° 40'	31° 9'	27° 40'	22° 3'	25
26	54° 70'	39° 9'	42° 31'	38° 1'	32° 14'	31° 6'	27° 34'	22° 0'	26
27	54° 28'	39° 9'	41° 93'	37° 9'	31° 89'	31° 3'	27° 30'	21° 7'	27
28	53° 85'	39° 9'	41° 55'	37° 8'	31° 64'	31° 0'	27° 26'	21° 4'	28
29	53° 43'	39° 8'	41° 17'	37° 6'	31° 40'	30° 8'	27° 23'	21° 0'	29
30	53° 00'	39° 8'	40° 79'	37° 4'	31° 17'	30° 5'	27° 20'	20° 7'	30
31	52° 58'	39° 8'	40° 42'	37° 3'	30° 95'	30° 2'	27° 18'	20° 3'	31
32	- -	- -	40° 05'	37° 2'	- -	- -	27° 18'	19° 9'	32

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Andromedæ.			γ Pegasi. (Algenib)			β Hydri.		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. South.	
	h ° m I	° 28 20 '		h ° 6 m	° 14 25 '		h ° 18 m	° 78 ° '	
Jan. 1	22 ⁵⁹ ₁₅	36 ⁴ ₁₀		14 ⁸⁷ ₁₂	47 ⁶ ₉		31 ⁶⁰ ₉₃	90 ⁶ ₁₁	
11	22 ⁴⁴ ₁₄	35 ⁴ ₁₃		14 ⁷⁵ ₁₁	46 ⁷ ₁₀		30 ⁶⁷ ₈₈	89 ⁵ ₁₆	
21	22 ³⁰ ₁₂	34 ¹ ₁₅		14 ⁶⁴ ₁₀	45 ⁷ ₁₁		29 ⁷⁹ ₇₉	87 ⁹ ₂₂	
31	22 ¹⁸ ₁₀	32 ⁶ ₁₆		14 ⁵⁴ ₀₉	44 ⁶ ₁₁		29 ⁰⁰ ₆₇	85 ⁷ ₂₇	
Feb. 10	22 ⁰⁸ ₀₇	31 ⁰ ₁₇		14 ⁴⁵ ₀₇	43 ⁵ ₁₀		28 ³³ ₅₅	83 ⁰ ₃₁	
20	22 ⁰¹ ₀₄	29 ³ ₁₆		14 ³⁸ ₀₃	42 ⁵ ₁₀		27 ⁷⁸ ₄₂	79 ⁹ ₃₃	
Mar. 1	21 ⁹⁷ ₀₁	27 ⁷ ₁₆		14 ³⁵ ₀₁	41 ⁵ ₀₈		27 ³⁶ ₂₇	76 ⁶ ₃₆	
11	21 ⁹⁶ ₀₄	26 ¹ ₁₅		14 ³⁴ ₀₄	40 ⁷ ₀₆		27 ⁰⁹ ₁₁	73 ⁰ ₃₈	
21	22 ⁰⁰ ₀₉	24 ⁶ ₁₂		14 ³³ ₀₇	39 ⁷ ₀₁		26 ⁹⁸ ₀₆	69 ² ₄₂	
31	22 ⁰⁹ ₁₃	23 ⁴ ₀₉		14 ⁴⁵ ₁₂	39 ⁷ ₀₁		27 ⁰⁴ ₂₃	65 ⁰ ₃₇	
Apr. 10	22 ²² ₁₈	22 ⁵ ₀₅		14 ⁵⁷ ₁₆	39 ⁶ ₀₂		27 ²⁷ ₃₈	61 ³ ₃₇	
20	22 ⁴⁰ ₂₂	22 ⁰ ₀₂		14 ⁷³ ₂₀	39 ⁸ ₀₅		27 ⁶⁵ ₅₄	57 ⁶ ₃₅	
30	22 ⁶² ₂₆	21 ⁸ ₀₃		14 ⁹³ ₂₄	40 ³ ₀₉		28 ¹⁹ ₆₇	54 ¹ ₃₂	
May 10	22 ⁸⁸ ₂₉	22 ¹ ₀₆		15 ¹⁷ ₂₆	41 ² ₁₁		28 ⁸⁶ ₈₀	50 ⁹ ₂₈	
20	23 ¹⁷ ₃₂	22 ⁷ ₁₀		15 ⁴³ ₂₉	42 ³ ₁₄		29 ⁶⁶ ₉₁	48 ¹ ₂₅	
30	23 ⁴⁹ ₃₃	23 ⁷ ₁₂		15 ⁷² ₃₁	43 ⁷ ₁₇		30 ⁵⁷ ₉₉	45 ⁶ ₂₀	
June 9	23 ⁸² ₃₄	24 ⁹ ₁₇		16 ⁰³ ₃₁	45 ⁴ ₁₉		31 ⁵⁶ ₁₀₆	43 ⁶ ₁₅	
19	24 ¹⁶ ₃₄	26 ⁶ ₂₁		16 ³⁴ ₃₂	47 ³ ₂₀		32 ⁶² ₁₁₀	42 ¹ ₁₀	
29	24 ⁵⁰ ₃₃	28 ⁷ ₂₂		16 ⁶⁶ ₃₁	49 ³ ₂₁		33 ⁷² ₁₁₀	41 ¹ ₀₄	
July 9	24 ⁸³ ₃₁	30 ⁹ ₂₃		16 ⁹⁷ ₂₉	51 ⁴ ₂₁		34 ⁸² ₁₀₇	40 ⁷ ₀₂	
19	25 ¹⁴ ₂₈	33 ² ₂₄		17 ²⁶ ₂₈	53 ⁵ ₂₁		35 ⁸⁹ ₁₀₂	40 ⁹ ₀₇	
29	25 ⁴² ₂₅	35 ⁶ ₂₅		17 ⁵⁴ ₂₄	55 ⁶ ₂₁		36 ⁹¹ ₉₃	41 ⁶ ₁₃	
Aug. 8	25 ⁶⁷ ₂₂	38 ¹ ₂₅		17 ⁷⁸ ₂₀	57 ⁷ ₁₉		37 ⁸⁴ ₈₁	42 ⁹ ₁₈	
18	25 ⁸⁹ ₁₈	40 ⁶ ₂₄		17 ⁹⁸ ₁₇	59 ⁶ ₁₈		38 ⁶⁵ ₆₇	44 ⁷ ₂₂	
28	26 ⁰⁷ ₁₃	43 ⁰ ₂₃		18 ¹⁵ ₁₄	61 ⁴ ₁₆		39 ³² ₅₀	46 ⁹ ₂₇	
Sept. 7	26 ²⁰ ₀₉	45 ³ ₂₁		18 ²⁹ ₀₉	63 ⁰ ₁₄		39 ⁸² ₃₁	49 ⁶ ₂₉	
17	26 ²⁹ ₀₆	47 ⁴ ₂₀		18 ³⁸ ₀₆	64 ⁴ ₁₂		40 ¹³ ₁₃	52 ⁵ ₃₀	
27	26 ³⁵ ₀₂	49 ⁴ ₁₈		18 ⁴⁴ ₀₂	65 ⁶ ₁₀		40 ²⁶ ₀₆	55 ⁵ ₃₁	
Oct. 7	26 ³⁷ ₀₂	51 ² ₁₅		18 ⁴⁶ ₀₁	66 ⁶ ₀₇		40 ²⁰ ₂₆	58 ⁶ ₃₁	
17	26 ³⁵ ₀₅	52 ⁷ ₁₃		18 ⁴⁵ ₀₄	67 ³ ₀₅		39 ⁹⁴ ₄₃	61 ⁷ ₂₉	
27	26 ³⁰ ₀₈	54 ⁰ ₀₉		18 ⁴¹ ₀₆	67 ⁸ ₀₃		39 ⁵¹ ₆₀	64 ⁶ ₂₆	
Nov. 6	26 ²² ₁₀	54 ⁹ ₀₇		18 ³⁵ ₀₈	68 ¹ ₀₀		38 ⁹¹ ₇₄	67 ² ₂₂	
16	26 ¹² ₁₂	55 ⁶ ₀₃		18 ²⁷ ₁₀	68 ¹ ₀₁		38 ¹⁷ ₈₄	69 ⁴ ₁₆	
26	26 ⁰⁰ ₁₃	55 ⁹ ₀₀		18 ¹⁷ ₁₁	68 ⁰ ₀₃		37 ³³ ₉₂	71 ⁰ ₁₁	
Dec. 6	25 ⁸⁷ ₁₄	55 ⁹ ₀₂		18 ⁰⁶ ₁₂	67 ⁷ ₀₆		36 ⁴¹ ₉₆	72 ¹ ₀₅	
16	25 ⁷³ ₁₅	55 ⁷ ₀₆		17 ⁹⁴ ₁₃	67 ¹ ₀₇		35 ⁴⁵ ₉₇	72 ⁶ ₀₂	
26	25 ⁵⁸ ₁₄	55 ¹ ₁₀		17 ⁸¹ ₁₂	66 ⁴ ₁₁		34 ⁴⁸ ₉₆	72 ⁴ ₀₇	
36	25 ⁴⁴ ₁₄	54 ¹ ₁₀		17 ⁶⁹ ₁₂	65 ³ ₁₁		33 ⁵² ₉₆	71 ⁷ ₀₇	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	12 Ceti.			α Cassiopeæ.			β Ceti.		
	R. A.		Dec. South.	R. A.		Dec. North.	R. A.		Dec. South.
	h	m	°	h	m	°	h	m	°
	0	23	4	0	32	55	0	36	18
Jan. 1	6 ^s 69 ^a	0 ^s 12 ^a	31 ^o 0 ['] 0 [']	50 ^s 01 ^a	0 ^s 28 ^a	48 ^o 6 ['] 0 [']	46 ^s 32 ^a	0 ^s 13 ^a	64 ^o 8 ['] 0 [']
11	6 ^s 57 ^a	0 ^s 11 ^a	31 ^o 6 ['] 0 [']	49 ^s 73 ^a	0 ^s 28 ^a	48 ^o 0 ['] 0 [']	46 ^s 19 ^a	0 ^s 13 ^a	65 ^o 3 ['] 0 [']
21	6 ^s 46 ^a	0 ^s 11 ^a	32 ^o 2 ['] 0 [']	49 ^s 45 ^a	0 ^s 27 ^a	47 ^o 0 ['] 0 [']	46 ^s 06 ^a	0 ^s 12 ^a	65 ^o 5 ['] 0 [']
31	6 ^s 35 ^a	0 ^s 09 ^a	32 ^o 6 ['] 0 [']	49 ^s 18 ^a	0 ^s 24 ^a	45 ^o 4 ['] 0 [']	45 ^s 94 ^a	0 ^s 11 ^a	65 ^o 5 ['] 0 [']
Feb. 10	6 ^s 26 ^a	0 ^s 07 ^a	32 ^o 9 ['] 0 [']	48 ^s 94 ^a	0 ^s 20 ^a	43 ^o 5 ['] 0 [']	45 ^s 83 ^a	0 ^s 09 ^a	65 ^o 3 ['] 0 [']
20	6 ^s 19 ^a	0 ^s 05 ^a	33 ^o 0 ['] 0 [']	48 ^s 74 ^a	0 ^s 15 ^a	41 ^o 3 ['] 0 [']	45 ^s 74 ^a	0 ^s 07 ^a	64 ^o 7 ['] 0 [']
Mar. 1	6 ^s 14 ^a	0 ^s 02 ^a	33 ^o 0 ['] 0 [']	48 ^s 59 ^a	0 ^s 10 ^a	38 ^o 9 ['] 0 [']	45 ^s 67 ^a	0 ^s 04 ^a	63 ^o 9 ['] 0 [']
11	6 ^s 12 ^a	0 ^s 01 ^a	32 ^o 6 ['] 0 [']	48 ^s 49 ^a	0 ^s 02 ^a	36 ^o 3 ['] 0 [']	45 ^s 63 ^a	0 ^s 00 ^a	62 ^o 8 ['] 0 [']
21	6 ^s 13 ^a	0 ^s 06 ^a	32 ^o 1 ['] 0 [']	48 ^s 47 ^a	0 ^s 06 ^a	33 ^o 7 ['] 0 [']	45 ^s 63 ^a	0 ^s 04 ^a	61 ^o 5 ['] 0 [']
31	6 ^s 19 ^a	0 ^s 10 ^a	31 ^o 3 ['] 0 [']	48 ^s 53 ^a	0 ^s 13 ^a	31 ^o 0 ['] 0 [']	45 ^s 67 ^a	0 ^s 07 ^a	59 ^o 7 ['] 0 [']
Apr. 10	6 ^s 29 ^a	0 ^s 13 ^a	30 ^o 2 ['] 0 [']	48 ^s 66 ^a	0 ^s 21 ^a	28 ^o 7 ['] 0 [']	45 ^s 74 ^a	0 ^s 12 ^a	57 ^o 9 ['] 0 [']
20	6 ^s 42 ^a	0 ^s 17 ^a	29 ^o 0 ['] 0 [']	48 ^s 87 ^a	0 ^s 27 ^a	26 ^o 7 ['] 0 [']	45 ^s 86 ^a	0 ^s 17 ^a	55 ^o 9 ['] 0 [']
30	6 ^s 59 ^a	0 ^s 22 ^a	27 ^o 5 ['] 0 [']	49 ^s 14 ^a	0 ^s 34 ^a	25 ^o 1 ['] 0 [']	46 ^s 03 ^a	0 ^s 20 ^a	53 ^o 7 ['] 0 [']
May 10	6 ^s 81 ^a	0 ^s 24 ^a	25 ^o 8 ['] 0 [']	49 ^s 48 ^a	0 ^s 39 ^a	23 ^o 9 ['] 0 [']	46 ^s 23 ^a	0 ^s 24 ^a	51 ^o 5 ['] 0 [']
20	7 ^s 05 ^a	0 ^s 27 ^a	23 ^o 9 ['] 0 [']	49 ^s 87 ^a	0 ^s 43 ^a	23 ^o 2 ['] 0 [']	46 ^s 47 ^a	0 ^s 27 ^a	49 ^o 1 ['] 0 [']
30	7 ^s 32 ^a	0 ^s 29 ^a	22 ^o 0 ['] 0 [']	50 ^s 30 ^a	0 ^s 46 ^a	23 ^o 0 ['] 0 [']	46 ^s 74 ^a	0 ^s 29 ^a	46 ^o 8 ['] 0 [']
June 9	7 ^s 61 ^a	0 ^s 31 ^a	20 ^o 0 ['] 0 [']	50 ^s 76 ^a	0 ^s 48 ^a	23 ^o 2 ['] 0 [']	47 ^s 03 ^a	0 ^s 31 ^a	44 ^o 5 ['] 0 [']
19	7 ^s 92 ^a	0 ^s 31 ^a	17 ^o 9 ['] 0 [']	51 ^s 24 ^a	0 ^s 48 ^a	24 ^o 0 ['] 0 [']	47 ^s 34 ^a	0 ^s 32 ^a	42 ^o 3 ['] 0 [']
29	8 ^s 23 ^a	0 ^s 30 ^a	15 ^o 9 ['] 0 [']	51 ^s 72 ^a	0 ^s 48 ^a	25 ^o 2 ['] 0 [']	47 ^s 66 ^a	0 ^s 32 ^a	40 ^o 3 ['] 0 [']
July 9	8 ^s 53 ^a	0 ^s 30 ^a	14 ^o 0 ['] 0 [']	52 ^s 20 ^a	0 ^s 45 ^a	26 ^o 9 ['] 0 [']	47 ^s 98 ^a	0 ^s 31 ^a	38 ^o 5 ['] 0 [']
19	8 ^s 83 ^a	0 ^s 28 ^a	12 ^o 2 ['] 0 [']	52 ^s 65 ^a	0 ^s 43 ^a	29 ^o 0 ['] 0 [']	48 ^s 29 ^a	0 ^s 29 ^a	36 ^o 9 ['] 0 [']
29	9 ^s 11 ^a	0 ^s 25 ^a	10 ^o 6 ['] 0 [']	53 ^s 08 ^a	0 ^s 38 ^a	31 ^o 4 ['] 0 [']	48 ^s 58 ^a	0 ^s 26 ^a	35 ^o 7 ['] 0 [']
Aug. 8	9 ^s 36 ^a	0 ^s 22 ^a	9 ^o 3 ['] 0 [']	53 ^s 46 ^a	0 ^s 34 ^a	34 ^o 1 ['] 0 [']	48 ^s 84 ^a	0 ^s 24 ^a	34 ^o 9 ['] 0 [']
18	9 ^s 58 ^a	0 ^s 18 ^a	8 ^o 2 ['] 0 [']	53 ^s 80 ^a	0 ^s 29 ^a	37 ^o 0 ['] 0 [']	49 ^s 08 ^a	0 ^s 20 ^a	34 ^o 4 ['] 0 [']
28	9 ^s 76 ^a	0 ^s 15 ^a	7 ^o 3 ['] 0 [']	54 ^s 09 ^a	0 ^s 24 ^a	40 ^o 0 ['] 0 [']	49 ^s 28 ^a	0 ^s 17 ^a	34 ^o 2 ['] 0 [']
Sept. 7	9 ^s 91 ^a	0 ^s 11 ^a	6 ^o 7 ['] 0 [']	54 ^s 33 ^a	0 ^s 17 ^a	43 ^o 2 ['] 0 [']	49 ^s 45 ^a	0 ^s 13 ^a	34 ^o 3 ['] 0 [']
17	10 ^s 02 ^a	0 ^s 07 ^a	6 ^o 4 ['] 0 [']	54 ^s 50 ^a	0 ^s 12 ^a	46 ^o 4 ['] 0 [']	49 ^s 58 ^a	0 ^s 08 ^a	34 ^o 8 ['] 0 [']
27	10 ^s 09 ^a	0 ^s 04 ^a	6 ^o 4 ['] 0 [']	54 ^s 62 ^a	0 ^s 06 ^a	49 ^o 6 ['] 0 [']	49 ^s 66 ^a	0 ^s 05 ^a	35 ^o 6 ['] 0 [']
Oct. 7	10 ^s 13 ^a	0 ^s 00 ^a	6 ^o 6 ['] 0 [']	54 ^s 68 ^a	0 ^s 00 ^a	52 ^o 7 ['] 0 [']	49 ^s 71 ^a	0 ^s 01 ^a	36 ^o 7 ['] 0 [']
17	10 ^s 13 ^a	0 ^s 03 ^a	7 ^o 0 ['] 0 [']	54 ^s 68 ^a	0 ^s 04 ^a	55 ^o 6 ['] 0 [']	49 ^s 72 ^a	0 ^s 02 ^a	37 ^o 9 ['] 0 [']
27	10 ^s 10 ^a	0 ^s 05 ^a	7 ^o 6 ['] 0 [']	54 ^s 64 ^a	0 ^s 10 ^a	58 ^o 2 ['] 0 [']	49 ^s 70 ^a	0 ^s 05 ^a	39 ^o 3 ['] 0 [']
Nov. 6	10 ^s 05 ^a	0 ^s 07 ^a	8 ^o 3 ['] 0 [']	54 ^s 54 ^a	0 ^s 15 ^a	60 ^o 6 ['] 0 [']	49 ^s 65 ^a	0 ^s 07 ^a	40 ^o 7 ['] 0 [']
16	9 ^s 98 ^a	0 ^s 09 ^a	9 ^o 1 ['] 0 [']	54 ^s 39 ^a	0 ^s 19 ^a	62 ^o 7 ['] 0 [']	49 ^s 58 ^a	0 ^s 10 ^a	42 ^o 1 ['] 0 [']
26	9 ^s 89 ^a	0 ^s 10 ^a	10 ^o 0 ['] 0 [']	54 ^s 20 ^a	0 ^s 21 ^a	64 ^o 4 ['] 0 [']	49 ^s 48 ^a	0 ^s 11 ^a	43 ^o 4 ['] 0 [']
Dec. 6	9 ^s 79 ^a	0 ^s 11 ^a	10 ^o 8 ['] 0 [']	53 ^s 99 ^a	0 ^s 25 ^a	65 ^o 6 ['] 0 [']	49 ^s 37 ^a	0 ^s 12 ^a	44 ^o 7 ['] 0 [']
16	9 ^s 68 ^a	0 ^s 12 ^a	11 ^o 7 ['] 0 [']	53 ^s 74 ^a	0 ^s 27 ^a	66 ^o 3 ['] 0 [']	49 ^s 25 ^a	0 ^s 13 ^a	45 ^o 7 ['] 0 [']
26	9 ^s 56 ^a	0 ^s 13 ^a	12 ^o 5 ['] 0 [']	53 ^s 47 ^a	0 ^s 28 ^a	66 ^o 5 ['] 0 [']	49 ^s 12 ^a	0 ^s 14 ^a	46 ^o 6 ['] 0 [']
36	9 ^s 43 ^a	0 ^s 13 ^a	13 ^o 2 ['] 0 [']	53 ^s 19 ^a	0 ^s 28 ^a	66 ^o 2 ['] 0 [']	48 ^s 98 ^a	0 ^s 14 ^a	47 ^o 2 ['] 0 [']

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH

Month and Day.	ϵ Piscium.		θ Ceti.		η Piscium.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h ° 55	^m 7 9	^h 1 17	^m 8 52	^h 1 24	^m 14 38
Jan. 1	54° 32' 0" 13	31° 2' 0" 8	14° 55' 0" 13	71° 3' 0" 8	13° 83' 0" 13	44° 1' 0" 7
11	54° 19' 0" 12	30° 4' 0" 8	14° 42' 0" 13	72° 1' 0" 6	13° 70' 0" 13	43° 4' 0" 8
21	54° 07' 0" 12	29° 6' 0" 7	14° 29' 0" 13	72° 7' 0" 4	13° 57' 0" 14	42° 6' 0" 8
31	53° 95' 0" 12	28° 9' 0" 8	14° 16' 0" 13	73° 1' 0" 2	13° 43' 0" 13	41° 8' 0" 8
Feb. 10	53° 83' 0" 09	28° 1' 0" 6	14° 03' 0" 11	73° 3' 0" 0	13° 30' 0" 12	41° 0' 0" 8
20	53° 74' 0" 08	27° 5' 0" 5	13° 92' 0" 10	73° 3' 0" 2	13° 18' 0" 11	40° 2' 0" 9
Mar. 1	53° 66' 0" 05	27° 0' 0" 4	13° 82' 0" 07	73° 1' 0" 5	13° 07' 0" 07	39° 3' 0" 7
11	53° 61' 0" 02	26° 6' 0" 2	13° 75' 0" 04	72° 6' 0" 7	13° 00' 0" 05	38° 6' 0" 6
21	53° 59' 0" 02	26° 4' 0" 1	13° 71' 0" 01	71° 9' 0" 1	12° 95' 0" 01	38° 0' 0" 4
31	53° 61' 0" 07	26° 5' 0" 3	13° 70' 0" 03	70° 9' 0" 1	12° 94' 0" 03	37° 6' 0" 3
Apr. 10	53° 68' 0" 10	26° 8' 0" 5	13° 73' 0" 09	70° 9' 0" 1	12° 97' 0" 10	37° 3' 0" 0
20	53° 78' 0" 15	27° 3' 0" 8	13° 82' 0" 12	68° 1' 0" 6	13° 07' 0" 13	37° 3' 0" 4
30	53° 93' 0" 19	28° 1' 0" 1	13° 94' 0" 17	66° 5' 0" 8	13° 20' 0" 17	37° 7' 0" 6
May 10	54° 12' 0" 23	29° 2' 0" 3	14° 11' 0" 20	64° 7' 0" 2	13° 37' 0" 21	38° 3' 0" 8
20	54° 35' 0" 26	30° 5' 0" 5	14° 31' 0" 24	62° 7' 0" 2	13° 58' 0" 25	39° 1' 0" 1
30	54° 61' 0" 28	32° 0' 0" 7	14° 55' 0" 27	60° 6' 0" 2	13° 83' 0" 28	40° 2' 0" 3
June 9	54° 89' 0" 30	33° 7' 0" 8	14° 82' 0" 29	58° 5' 0" 2	14° 11' 0" 30	41° 5' 0" 6
19	55° 19' 0" 31	35° 5' 0" 9	15° 11' 0" 30	56° 4' 0" 2	14° 41' 0" 31	43° 1' 0" 7
29	55° 50' 0" 31	37° 4' 0" 9	15° 41' 0" 31	54° 3' 0" 2	14° 72' 0" 31	44° 8' 0" 8
July 9	55° 81' 0" 31	39° 3' 0" 9	15° 72' 0" 31	52° 3' 0" 2	15° 03' 0" 31	46° 6' 0" 8
19	56° 12' 0" 29	41° 3' 0" 8	16° 02' 0" 30	50° 5' 0" 2	15° 35' 0" 30	48° 4' 0" 9
29	56° 41' 0" 27	43° 1' 0" 8	16° 32' 0" 27	49° 0' 0" 2	15° 65' 0" 29	50° 3' 0" 8
Aug. 8	56° 68' 0" 24	44° 9' 0" 6	16° 59' 0" 26	47° 7' 0" 1	15° 94' 0" 27	52° 1' 0" 8
18	56° 92' 0" 21	46° 5' 0" 3	16° 85' 0" 23	46° 7' 0" 7	16° 21' 0" 23	53° 9' 0" 6
28	57° 13' 0" 18	47° 8' 0" 2	17° 08' 0" 19	46° 0' 0" 4	16° 44' 0" 21	55° 5' 0" 4
Sept. 7	57° 31' 0" 14	49° 0' 0" 0	17° 27' 0" 16	45° 6' 0" 1	16° 65' 0" 17	56° 9' 0" 3
17	57° 45' 0" 10	50° 0' 0" 7	17° 43' 0" 12	45° 5' 0" 3	16° 82' 0" 14	58° 2' 0" 2
27	57° 55' 0" 08	50° 7' 0" 5	17° 55' 0" 09	45° 8' 0" 5	16° 96' 0" 10	59° 4' 0" 8
Oct. 7	57° 63' 0" 04	51° 2' 0" 3	17° 64' 0" 06	46° 3' 0" 7	17° 06' 0" 07	60° 2' 0" 7
17	57° 67' 0" 01	51° 5' 0" 0	17° 70' 0" 02	47° 0' 0" 9	17° 13' 0" 04	60° 9' 0" 5
27	57° 68' 0" 02	51° 5' 0" 1	17° 72' 0" 00	47° 9' 0" 1	17° 17' 0" 01	61° 4' 0" 4
Nov. 6	57° 66' 0" 04	51° 4' 0" 3	17° 72' 0" 03	49° 0' 0" 1	17° 18' 0" 01	61° 8' 0" 1
16	57° 62' 0" 07	51° 1' 0" 4	17° 69' 0" 06	50° 1' 0" 2	17° 17' 0" 04	61° 9' 0" 1
26	57° 55' 0" 08	50° 7' 0" 5	17° 63' 0" 08	51° 3' 0" 1	17° 13' 0" 07	61° 8' 0" 2
Dec. 6	57° 47' 0" 10	50° 2' 0" 6	17° 55' 0" 09	52° 4' 0" 1	17° 06' 0" 09	61° 6' 0" 3
16	57° 37' 0" 11	49° 6' 0" 7	17° 46' 0" 11	53° 5' 0" 9	16° 97' 0" 10	61° 3' 0" 5
26	57° 26' 0" 12	48° 9' 0" 7	17° 35' 0" 13	54° 4' 0" 9	16° 87' 0" 12	60° 8' 0" 6
36	57° 14' 0" 12	48° 2' 0" 7	17° 22' 0" 13	55° 3' 0" 9	16° 75' 0" 12	60° 2' 0" 6

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Iridani. (Achernar)		ν Piscium.		β Arietis.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	h m I 32	o / 57 55	h m I 34	o / 4 47	h m I 47	o / 20 8
Jan. I	^s 39 ^s 31 ^s	ⁿ 56 ⁿ 5 ⁿ	^s 22 ^s 59 ^s	ⁿ 56 ⁿ 8 ⁿ	^s 9 ^s 41 ^s	ⁿ 38 ⁿ 5 ⁿ
II	38 ^o 34 ^o	56 ^o 4 ^o	22 ^o 48 ^o	56 ^o 1 ^o	9 ^o 28 ^o	38 ^o 0 ^o
21	38 ^o 35 ^o	56 ^o 2 ^o	22 ^o 35 ^o	55 ^o 4 ^o	9 ^o 14 ^o	37 ^o 4 ^o
31	38 ^o 34 ^o	56 ^o 0 ^o	22 ^o 22 ^o	54 ^o 7 ^o	9 ^o 00 ^o	36 ^o 6 ^o
Feb. 10	37 ^o 33 ^o	54 ^o 1 ^o	22 ^o 08 ^o	54 ^o 1 ^o	8 ^o 55 ^o	35 ^o 7 ^o
20	37 ^o 29 ^o	53 ^o 0 ^o	21 ^o 06 ^o	53 ^o 6 ^o	8 ^o 71 ^o	34 ^o 8 ^o
Mar. I	37 ^o 26 ^o	50 ^o 8 ^o	21 ^o 05 ^o	53 ^o 2 ^o	8 ^o 58 ^o	33 ^o 8 ^o
11	37 ^o 22 ^o	48 ^o 2 ^o	21 ^o 08 ^o	53 ^o 0 ^o	8 ^o 48 ^o	32 ^o 9 ^o
21	37 ^o 17 ^o	45 ^o 3 ^o	21 ^o 06 ^o	53 ^o 0 ^o	8 ^o 41 ^o	32 ^o 0 ^o
31	37 ^o 11 ^o	42 ^o 1 ^o	21 ^o 02 ^o	52 ^o 9 ^o	8 ^o 38 ^o	31 ^o 3 ^o
Apr. 10	36 ^o 04 ^o	38 ^o 7 ^o	21 ^o 02 ^o	53 ^o 0 ^o	8 ^o 39 ^o	30 ^o 7 ^o
20	36 ^o 04 ^o	34 ^o 8 ^o	21 ^o 07 ^o	53 ^o 4 ^o	8 ^o 46 ^o	30 ^o 4 ^o
30	37 ^o 01 ^o	31 ^o 3 ^o	21 ^o 12 ^o	54 ^o 9 ^o	8 ^o 57 ^o	30 ^o 3 ^o
May 10	37 ^o 18 ^o	27 ^o 8 ^o	22 ^o 06 ^o	56 ^o 0 ^o	8 ^o 72 ^o	30 ^o 5 ^o
20	37 ^o 24 ^o	24 ^o 4 ^o	22 ^o 26 ^o	57 ^o 3 ^o	8 ^o 93 ^o	30 ^o 9 ^o
30	37 ^o 31 ^o	21 ^o 2 ^o	22 ^o 49 ^o	58 ^o 8 ^o	9 ^o 17 ^o	31 ^o 7 ^o
June 9	38 ^o 10 ^o	18 ^o 3 ^o	22 ^o 26 ^o	60 ^o 5 ^o	9 ^o 27 ^o	32 ^o 7 ^o
19	38 ^o 41 ^o	15 ^o 7 ^o	23 ^o 03 ^o	62 ^o 2 ^o	9 ^o 74 ^o	33 ^o 9 ^o
29	38 ^o 44 ^o	13 ^o 6 ^o	23 ^o 30 ^o	64 ^o 1 ^o	10 ^o 05 ^o	35 ^o 3 ^o
July 9	39 ^o 46 ^o	11 ^o 9 ^o	23 ^o 31 ^o	66 ^o 0 ^o	10 ^o 38 ^o	36 ^o 9 ^o
19	39 ^o 47 ^o	10 ^o 7 ^o	23 ^o 31 ^o	67 ^o 8 ^o	10 ^o 32 ^o	37 ^o 7 ^o
29	40 ^o 47 ^o	10 ^o 0 ^o	24 ^o 30 ^o	69 ^o 6 ^o	11 ^o 02 ^o	38 ^o 6 ^o
Aug. 8	40 ^o 45 ^o	10 ^o 0 ^o	24 ^o 28 ^o	71 ^o 2 ^o	11 ^o 02 ^o	40 ^o 4 ^o
18	41 ^o 42 ^o	10 ^o 5 ^o	24 ^o 26 ^o	72 ^o 7 ^o	11 ^o 32 ^o	42 ^o 2 ^o
28	41 ^o 38 ^o	11 ^o 1 ^o	24 ^o 24 ^o	72 ^o 7 ^o	11 ^o 60 ^o	44 ^o 0 ^o
Sept. 7	41 ^o 33 ^o	11 ^o 6 ^o	25 ^o 03 ^o	73 ^o 9 ^o	11 ^o 26 ^o	45 ^o 8 ^o
17	41 ^o 27 ^o	13 ^o 2 ^o	25 ^o 21 ^o	74 ^o 9 ^o	11 ^o 86 ^o	47 ^o 3 ^o
27	42 ^o 20 ^o	15 ^o 2 ^o	25 ^o 18 ^o	74 ^o 9 ^o	12 ^o 09 ^o	48 ^o 8 ^o
7	42 ^o 19 ^o	17 ^o 6 ^o	25 ^o 14 ^o	75 ^o 7 ^o	12 ^o 29 ^o	50 ^o 1 ^o
Oct. 7	42 ^o 13 ^o	20 ^o 4 ^o	25 ^o 11 ^o	76 ^o 3 ^o	12 ^o 45 ^o	51 ^o 1 ^o
17	42 ^o 06 ^o	23 ^o 4 ^o	25 ^o 08 ^o	76 ^o 6 ^o	12 ^o 59 ^o	52 ^o 3 ^o
27	42 ^o 01 ^o	26 ^o 4 ^o	25 ^o 04 ^o	76 ^o 7 ^o	12 ^o 69 ^o	53 ^o 1 ^o
Nov. 6	42 ^o 07 ^o	29 ^o 3 ^o	25 ^o 02 ^o	76 ^o 5 ^o	12 ^o 75 ^o	54 ^o 4 ^o
16	42 ^o 14 ^o	32 ^o 1 ^o	25 ^o 01 ^o	76 ^o 2 ^o	12 ^o 79 ^o	55 ^o 7 ^o
26	42 ^o 20 ^o	34 ^o 7 ^o	25 ^o 03 ^o	75 ^o 8 ^o	12 ^o 01 ^o	57 ^o 1 ^o
Dec. 6	41 ^o 25 ^o	36 ^o 9 ^o	25 ^o 06 ^o	75 ^o 2 ^o	12 ^o 80 ^o	58 ^o 1 ^o
16	41 ^o 28 ^o	38 ^o 7 ^o	25 ^o 08 ^o	74 ^o 6 ^o	12 ^o 77 ^o	59 ^o 4 ^o
26	41 ^o 32 ^o	39 ^o 9 ^o	25 ^o 10 ^o	73 ^o 9 ^o	12 ^o 73 ^o	60 ^o 1 ^o
36	40 ^o 33 ^o	40 ^o 7 ^o	25 ^o 11 ^o	72 ^o 4 ^o	12 ^o 65 ^o	61 ^o 3 ^o
6	41 ^o 31 ^o	39 ^o 9 ^o	25 ^o 53 ^o	73 ^o 2 ^o	12 ^o 55 ^o	62 ^o 1 ^o
16	40 ^o 98 ^o	40 ^o 7 ^o	25 ^o 42 ^o	72 ^o 4 ^o	12 ^o 43 ^o	63 ^o 7 ^o

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Arietis.		67 Ceti.		ξ Ceti.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	h m 1 59	° ' 22 49	h m 2 10	° ' 7 2	h m 2 20	° ' 7 50
Jan. 1	32° 36' 0" 13	11° 8' 0" 4	13° 38' 0" 12	63° 9' 0" 9	57° 42' 0" 11	57° 2' 0" 7
11	32° 23' 0" 14	11° 4' 0" 6	13° 26' 0" 13	64° 8' 0" 8	57° 31' 0" 13	56° 5' 0" 7
21	32° 09' 0" 16	10° 8' 0" 7	13° 13' 0" 14	65° 6' 0" 6	57° 18' 0" 14	55° 8' 0" 6
31	31° 93' 0" 15	10° 1' 0" 8	12° 99' 0" 15	66° 2' 0" 3	57° 04' 0" 15	55° 2' 0" 6
Feb. 10	31° 78' 0" 15	9° 3' 1' 0	12° 84' 0" 15	66° 5' 0" 2	56° 89' 0" 14	54° 6' 0" 6
20	31° 63' 0" 14	8° 3' 1' 0	12° 69' 0" 13	66° 7' 0" 0	56° 75' 0" 14	54° 0' 0" 5
Mar. 1	31° 49' 0" 11	7° 3' 1' 0	12° 56' 0" 12	66° 7' 0" 3	56° 61' 0" 12	53° 5' 0" 3
11	31° 38' 0" 08	6° 3' 1' 0	12° 44' 0" 09	66° 4' 0" 5	56° 49' 0" 10	53° 2' 0" 2
21	31° 30' 0" 04	5° 3' 0" 8	12° 35' 0" 05	65° 9' 0" 8	56° 39' 0" 06	53° 0' 0" 1
31	31° 26' 0" 00	4° 5' 0" 7	12° 30' 0" 02	65° 1' 1' 0	56° 33' 0" 02	52° 9' 0" 1
Apr. 10	31° 26' 0" 04	3° 8' 0" 6	12° 28' 0" 02	64° 1' 1' 2	56° 31' 0" 02	53° 0' 0" 4
20	31° 30' 0" 11	3° 2' 0" 3	12° 30' 0" 08	62° 9' 1' 6	56° 33' 0" 07	53° 4' 0" 6
30	31° 41' 0" 15	2° 9' 0" 0	12° 38' 0" 12	61° 3' 1' 7	56° 40' 0" 12	54° 0' 0" 8
May 10	31° 56' 0" 19	2° 9' 0" 3	12° 50' 0" 16	59° 6' 1' 9	56° 52' 0" 16	54° 8' 1' 0
20	31° 75' 0" 24	3° 2' 0" 5	12° 66' 0" 20	57° 7' 1' 9	56° 68' 0" 20	55° 8' 1' 3
30	31° 99' 0" 27	3° 7' 0" 8	12° 86' 0" 23	55° 8' 2' 1	56° 88' 0" 23	57° 1' 1' 4
June 9	32° 26' 0" 29	4° 5' 1' 0	13° 09' 0" 26	53° 7' 2' 0	57° 11' 0" 26	58° 5' 1' 5
19	32° 55' 0" 31	5° 5' 1' 3	13° 35' 0" 29	51° 7' 2' 1	57° 37' 0" 29	60° 0' 1' 7
29	32° 86' 0" 33	6° 8' 1' 5	13° 64' 0" 30	49° 6' 2' 0	57° 66' 0" 31	61° 7' 1' 7
July 9	33° 19' 0" 33	8° 3' 1' 6	13° 94' 0" 30	47° 6' 1' 9	57° 97' 0" 30	63° 4' 1' 6
19	33° 52' 0" 33	9° 9' 1' 7	14° 24' 0" 30	45° 7' 1' 6	58° 27' 0" 31	65° 0' 1' 7
29	33° 85' 0" 32	11° 6' 1' 8	14° 54' 0" 29	44° 1' 1' 4	58° 58' 0" 30	66° 7' 1' 6
Aug. 8	34° 17' 0" 29	13° 4' 1' 7	14° 83' 0" 28	42° 7' 1' 1	58° 88' 0" 28	68° 3' 1' 4
18	34° 46' 0" 27	15° 1' 1' 7	15° 11' 0" 25	41° 6' 0" 9	59° 16' 0" 26	69° 7' 1' 3
28	34° 73' 0" 24	16° 8' 1' 7	15° 36' 0" 24	40° 7' 0" 5	59° 42' 0" 24	71° 0' 1' 0
Sept. 7	34° 97' 0" 21	18° 5' 1' 6	15° 60' 0" 20	40° 2' 0" 1	59° 66' 0" 22	72° 0' 0" 9
17	35° 18' 0" 18	20° 1' 1' 4	15° 80' 0" 17	40° 1' 0" 1	59° 88' 0" 19	72° 9' 0" 6
27	35° 36' 0" 15	21° 5' 1' 3	15° 97' 0" 14	40° 2' 0" 4	60° 07' 0" 15	73° 5' 0" 4
Oct. 7	35° 51' 0" 12	22° 8' 1' 1	16° 11' 0" 12	40° 6' 0" 7	60° 22' 0" 13	73° 9' 0" 1
17	35° 63' 0" 08	23° 9' 0" 9	16° 23' 0" 07	41° 3' 0" 9	60° 35' 0" 19	74° 0' 0" 0
27	35° 71' 0" 05	24° 8' 0" 8	16° 30' 0" 05	42° 2' 1' 0	60° 45' 0" 07	74° 0' 0" 2
Nov. 6	35° 76' 0" 02	25° 6' 0" 5	16° 35' 0" 02	43° 2' 1' 2	60° 52' 0" 03	73° 8' 0" 3
16	35° 78' 0" 01	26° 1' 0" 4	16° 37' 0" 01	44° 4' 1' 2	60° 55' 0" 01	73° 5' 0" 3
26	35° 77' 0" 04	26° 5' 0" 3	16° 36' 0" 04	45° 6' 1' 3	60° 56' 0" 02	73° 0' 0" 3
Dec. 6	35° 73' 0" 07	26° 8' 0" 0	16° 32' 0" 06	46° 9' 1' 2	60° 54' 0" 05	72° 5' 0" 6
16	35° 66' 0" 09	26° 8' 0" 1	16° 26' 0" 09	48° 1' 1' 1	60° 49' 0" 08	71° 9' 0" 7
26	35° 57' 0" 12	26° 7' 0" 3	16° 17' 0" 12	49° 2' 1' 0	60° 41' 0" 10	71° 2' 0" 6
36	35° 45' 0" 12	26° 4' 0" 3	16° 05' 0" 12	50° 2' 1' 0	60° 31' 0" 10	70° 6' 0" 6

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	γ Ceti.		α Ceti.		δ Arietis.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 2 ^m 36	[°] 2 ['] 39	^h 2 ^m 55	[°] 3 ['] 33	^h 3 ^m 3	[°] 19 ['] 12
Jan. 1	16 ^s 91 ^s 0 ^s 11	37 ^s 9 ^s 0 ^s 8	11 ^s 98 ^s 0 ^s 09	13 ^s 7 ^s 0 ^s 8	53 ^s 34 ^s 0 ^s 09	40 ^s 1 ^s 0 ^s 3
11	16 ^s 80 ^s 0 ^s 12	37 ^s 1 ^s 0 ^s 7	11 ^s 89 ^s 0 ^s 12	12 ^s 9 ^s 0 ^s 7	53 ^s 25 ^s 0 ^s 12	39 ^s 8 ^s 0 ^s 4
21	16 ^s 68 ^s 0 ^s 15	36 ^s 4 ^s 0 ^s 6	11 ^s 77 ^s 0 ^s 14	12 ^s 2 ^s 0 ^s 7	53 ^s 13 ^s 0 ^s 15	39 ^s 4 ^s 0 ^s 5
31	16 ^s 53 ^s 0 ^s 15	35 ^s 8 ^s 0 ^s 6	11 ^s 63 ^s 0 ^s 16	11 ^s 5 ^s 0 ^s 7	52 ^s 98 ^s 0 ^s 15	38 ^s 9 ^s 0 ^s 5
Feb. 10	16 ^s 38 ^s 0 ^s 15	35 ^s 2 ^s 0 ^s 4	11 ^s 47 ^s 0 ^s 15	11 ^s 0 ^s 0 ^s 5	52 ^s 82 ^s 0 ^s 17	38 ^s 4 ^s 0 ^s 6
20	16 ^s 23 ^s 0 ^s 14	34 ^s 8 ^s 0 ^s 3	11 ^s 32 ^s 0 ^s 16	10 ^s 5 ^s 0 ^s 3	52 ^s 65 ^s 0 ^s 16	37 ^s 8 ^s 0 ^s 7
Mar. 1	16 ^s 09 ^s 0 ^s 13	34 ^s 5 ^s 0 ^s 2	11 ^s 16 ^s 0 ^s 14	10 ^s 2 ^s 0 ^s 1	52 ^s 49 ^s 0 ^s 15	37 ^s 1 ^s 0 ^s 6
11	15 ^s 96 ^s 0 ^s 11	34 ^s 3 ^s 0 ^s 0	11 ^s 02 ^s 0 ^s 12	10 ^s 1 ^s 0 ^s 0	52 ^s 34 ^s 0 ^s 14	36 ^s 5 ^s 0 ^s 7
21	15 ^s 85 ^s 0 ^s 08	34 ^s 3 ^s 0 ^s 2	10 ^s 90 ^s 0 ^s 09	10 ^s 1 ^s 0 ^s 1	52 ^s 20 ^s 0 ^s 10	35 ^s 8 ^s 0 ^s 6
31	15 ^s 77 ^s 0 ^s 04	34 ^s 5 ^s 0 ^s 4	10 ^s 81 ^s 0 ^s 06	10 ^s 2 ^s 0 ^s 3	52 ^s 10 ^s 0 ^s 06	35 ^s 2 ^s 0 ^s 4
Apr. 10	15 ^s 73 ^s 0 ^s 01	34 ^s 9 ^s 0 ^s 7	10 ^s 75 ^s 0 ^s 01	10 ^s 5 ^s 0 ^s 5	52 ^s 04 ^s 0 ^s 02	34 ^s 8 ^s 0 ^s 4
20	15 ^s 74 ^s 0 ^s 04	35 ^s 6 ^s 0 ^s 8	10 ^s 74 ^s 0 ^s 03	11 ^s 0 ^s 0 ^s 8	52 ^s 02 ^s 0 ^s 03	34 ^s 4 ^s 0 ^s 2
30	15 ^s 78 ^s 0 ^s 11	36 ^s 4 ^s 1 ^s 1	10 ^s 77 ^s 0 ^s 08	11 ^s 8 ^s 1 ^s 0	52 ^s 05 ^s 0 ^s 09	34 ^s 2 ^s 0 ^s 0
May 10	15 ^s 89 ^s 0 ^s 14	37 ^s 5 ^s 1 ^s 3	10 ^s 85 ^s 0 ^s 13	12 ^s 8 ^s 1 ^s 2	52 ^s 14 ^s 0 ^s 13	34 ^s 2 ^s 0 ^s 3
20	16 ^s 03 ^s 0 ^s 18	38 ^s 8 ^s 1 ^s 5	10 ^s 98 ^s 0 ^s 17	14 ^s 0 ^s 1 ^s 4	52 ^s 27 ^s 0 ^s 18	34 ^s 5 ^s 0 ^s 4
30	16 ^s 21 ^s 0 ^s 22	40 ^s 3 ^s 1 ^s 6	11 ^s 15 ^s 0 ^s 20	15 ^s 4 ^s 1 ^s 4	52 ^s 45 ^s 0 ^s 21	34 ^s 9 ^s 0 ^s 7
June 9	16 ^s 43 ^s 0 ^s 26	41 ^s 9 ^s 1 ^s 7	11 ^s 35 ^s 0 ^s 24	16 ^s 8 ^s 1 ^s 6	52 ^s 66 ^s 0 ^s 25	35 ^s 6 ^s 0 ^s 9
19	16 ^s 69 ^s 0 ^s 27	43 ^s 6 ^s 1 ^s 7	11 ^s 59 ^s 0 ^s 27	18 ^s 4 ^s 1 ^s 7	52 ^s 91 ^s 0 ^s 28	36 ^s 5 ^s 1 ^s 0
29	16 ^s 96 ^s 0 ^s 29	45 ^s 3 ^s 1 ^s 8	11 ^s 86 ^s 0 ^s 28	20 ^s 1 ^s 1 ^s 7	53 ^s 19 ^s 0 ^s 30	37 ^s 5 ^s 1 ^s 1
July 9	17 ^s 25 ^s 0 ^s 30	47 ^s 1 ^s 1 ^s 7	12 ^s 14 ^s 0 ^s 30	21 ^s 8 ^s 1 ^s 7	53 ^s 49 ^s 0 ^s 31	38 ^s 6 ^s 1 ^s 3
19	17 ^s 55 ^s 0 ^s 30	48 ^s 8 ^s 1 ^s 6	12 ^s 44 ^s 0 ^s 31	23 ^s 5 ^s 1 ^s 6	53 ^s 80 ^s 0 ^s 32	39 ^s 9 ^s 1 ^s 5
29	17 ^s 85 ^s 0 ^s 30	50 ^s 4 ^s 1 ^s 5	12 ^s 75 ^s 0 ^s 29	25 ^s 1 ^s 1 ^s 4	54 ^s 12 ^s 0 ^s 32	41 ^s 4 ^s 1 ^s 3
Aug. 8	18 ^s 15 ^s 0 ^s 28	51 ^s 9 ^s 1 ^s 3	13 ^s 04 ^s 0 ^s 29	26 ^s 5 ^s 1 ^s 3	54 ^s 44 ^s 0 ^s 31	42 ^s 7 ^s 1 ^s 3
18	18 ^s 43 ^s 0 ^s 27	53 ^s 2 ^s 1 ^s 1	13 ^s 33 ^s 0 ^s 27	27 ^s 8 ^s 1 ^s 1	54 ^s 75 ^s 0 ^s 29	44 ^s 0 ^s 1 ^s 3
28	18 ^s 70 ^s 0 ^s 25	54 ^s 3 ^s 0 ^s 9	13 ^s 60 ^s 0 ^s 26	28 ^s 9 ^s 0 ^s 9	55 ^s 04 ^s 0 ^s 28	45 ^s 3 ^s 1 ^s 3
Sept. 7	18 ^s 95 ^s 0 ^s 22	55 ^s 2 ^s 0 ^s 6	13 ^s 86 ^s 0 ^s 24	29 ^s 8 ^s 0 ^s 6	55 ^s 32 ^s 0 ^s 25	46 ^s 6 ^s 1 ^s 1
17	19 ^s 17 ^s 0 ^s 20	55 ^s 8 ^s 0 ^s 3	14 ^s 10 ^s 0 ^s 21	30 ^s 4 ^s 0 ^s 3	55 ^s 57 ^s 0 ^s 24	47 ^s 7 ^s 0 ^s 9
27	19 ^s 37 ^s 0 ^s 16	56 ^s 1 ^s 0 ^s 1	14 ^s 31 ^s 0 ^s 18	30 ^s 7 ^s 0 ^s 1	55 ^s 81 ^s 0 ^s 21	48 ^s 6 ^s 0 ^s 9
Oct. 7	19 ^s 53 ^s 0 ^s 14	56 ^s 2 ^s 0 ^s 1	14 ^s 49 ^s 0 ^s 16	30 ^s 8 ^s 0 ^s 1	56 ^s 02 ^s 0 ^s 17	49 ^s 5 ^s 0 ^s 7
17	19 ^s 67 ^s 0 ^s 11	56 ^s 1 ^s 0 ^s 4	14 ^s 65 ^s 0 ^s 13	30 ^s 7 ^s 0 ^s 4	56 ^s 19 ^s 0 ^s 15	50 ^s 2 ^s 0 ^s 5
27	19 ^s 78 ^s 0 ^s 08	55 ^s 7 ^s 0 ^s 6	14 ^s 78 ^s 0 ^s 10	30 ^s 3 ^s 0 ^s 5	56 ^s 34 ^s 0 ^s 12	50 ^s 7 ^s 0 ^s 4
Nov. 6	19 ^s 86 ^s 0 ^s 05	55 ^s 1 ^s 0 ^s 7	14 ^s 88 ^s 0 ^s 06	29 ^s 8 ^s 0 ^s 7	56 ^s 46 ^s 0 ^s 09	51 ^s 1 ^s 0 ^s 3
16	19 ^s 91 ^s 0 ^s 02	54 ^s 4 ^s 0 ^s 7	14 ^s 94 ^s 0 ^s 04	29 ^s 1 ^s 0 ^s 7	56 ^s 55 ^s 0 ^s 06	51 ^s 4 ^s 0 ^s 2
26	19 ^s 93 ^s 0 ^s 01	53 ^s 7 ^s 0 ^s 9	14 ^s 98 ^s 0 ^s 00	28 ^s 4 ^s 0 ^s 9	56 ^s 61 ^s 0 ^s 02	51 ^s 6 ^s 0 ^s 0
Dec. 6	19 ^s 92 ^s 0 ^s 04	52 ^s 8 ^s 0 ^s 8	14 ^s 98 ^s 0 ^s 02	27 ^s 5 ^s 0 ^s 8	56 ^s 63 ^s 0 ^s 02	51 ^s 6 ^s 0 ^s 0
16	19 ^s 88 ^s 0 ^s 07	52 ^s 0 ^s 0 ^s 9	14 ^s 96 ^s 0 ^s 05	26 ^s 7 ^s 0 ^s 9	56 ^s 61 ^s 0 ^s 05	51 ^s 6 ^s 0 ^s 2
26	19 ^s 81 ^s 0 ^s 10	51 ^s 1 ^s 0 ^s 8	14 ^s 91 ^s 0 ^s 10	25 ^s 8 ^s 0 ^s 8	56 ^s 56 ^s 0 ^s 08	51 ^s 4 ^s 0 ^s 2
36	19 ^s 71 ^s 0 ^s 00	50 ^s 3 ^s 0 ^s 0	14 ^s 81 ^s 0 ^s 00	25 ^s 0 ^s 0 ^s 0	56 ^s 48 ^s 0 ^s 00	51 ^s 2 ^s 0 ^s 0

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Persei.		η Tauri.		γ Eridani.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 3 ^m 14	[°] 49 ['] 22	^h 3 ^m 39	[°] 23 ['] 40	^h 3 ^m 51	[°] 13 ['] 53
Jan. 1	40 ^s .56 ^s 0 ^s .16	36 ^s .6 ^s 0 ^s .8	26 ^s .43 ^s 0 ^s .08	57 ^s .6 ^s 0 ^s .1	42 ^s .86 ^s 0 ^s .09	58 ^s .5 ^s 1 ^s .5
11	40 ^s .40 ^s 0 ^s .20	37 ^s .4 ^s 0 ^s .5	26 ^s .35 ^s 0 ^s .11	57 ^s .5 ^s 0 ^s .1	42 ^s .77 ^s 0 ^s .12	60 ^s .0 ^s 1 ^s .2
21	40 ^s .20 ^s 0 ^s .23	37 ^s .9 ^s 0 ^s .2	26 ^s .24 ^s 0 ^s .14	57 ^s .4 ^s 0 ^s .3	42 ^s .65 ^s 0 ^s .14	61 ^s .2 ^s 1 ^s .0
31	39 ^s .97 ^s 0 ^s .25	38 ^s .1 ^s 0 ^s .2	26 ^s .10 ^s 0 ^s .16	57 ^s .1 ^s 0 ^s .3	42 ^s .51 ^s 0 ^s .16	62 ^s .2 ^s 0 ^s .8
Feb. 10	39 ^s .72 ^s 0 ^s .26	37 ^s .9 ^s 0 ^s .6	25 ^s .94 ^s 0 ^s .18	56 ^s .8 ^s 0 ^s .5	42 ^s .35 ^s 0 ^s .18	63 ^s .0 ^s 0 ^s .4
20	39 ^s .46 ^s 0 ^s .26	37 ^s .3 ^s 1 ^s .0	25 ^s .76 ^s 0 ^s .18	56 ^s .3 ^s 0 ^s .6	42 ^s .17 ^s 0 ^s .19	63 ^s .4 ^s 0 ^s .1
Mar. 1	39 ^s .20 ^s 0 ^s .25	36 ^s .3 ^s 1 ^s .3	25 ^s .58 ^s 0 ^s .18	55 ^s .7 ^s 0 ^s .6	41 ^s .98 ^s 0 ^s .18	63 ^s .5 ^s 0 ^s .2
11	38 ^s .95 ^s 0 ^s .21	35 ^s .0 ^s 1 ^s .5	25 ^s .40 ^s 0 ^s .16	55 ^s .1 ^s 0 ^s .7	41 ^s .80 ^s 0 ^s .16	63 ^s .3 ^s 0 ^s .4
21	38 ^s .74 ^s 0 ^s .17	33 ^s .5 ^s 1 ^s .7	25 ^s .24 ^s 0 ^s .12	54 ^s .4 ^s 0 ^s .7	41 ^s .64 ^s 0 ^s .14	62 ^s .9 ^s 0 ^s .8
31	38 ^s .57 ^s 0 ^s .11	31 ^s .8 ^s 1 ^s .8	25 ^s .12 ^s 0 ^s .10	53 ^s .7 ^s 0 ^s .5	41 ^s .50 ^s 0 ^s .12	62 ^s .1 ^s 1 ^s .0
Apr. 10	38 ^s .46 ^s 0 ^s .05	30 ^s .0 ^s 1 ^s .9	25 ^s .02 ^s 0 ^s .05	53 ^s .2 ^s 0 ^s .7	41 ^s .38 ^s 0 ^s .07	61 ^s .1 ^s 1 ^s .3
20	38 ^s .41 ^s 0 ^s .02	28 ^s .1 ^s 1 ^s .8	24 ^s .97 ^s 0 ^s .01	52 ^s .5 ^s 0 ^s .5	41 ^s .31 ^s 0 ^s .04	59 ^s .8 ^s 1 ^s .5
30	38 ^s .43 ^s 0 ^s .08	26 ^s .3 ^s 1 ^s .7	24 ^s .96 ^s 0 ^s .04	52 ^s .0 ^s 0 ^s .3	41 ^s .27 ^s 0 ^s .01	58 ^s .3 ^s 1 ^s .8
May 10	38 ^s .51 ^s 0 ^s .17	24 ^s .6 ^s 1 ^s .7	25 ^s .00 ^s 0 ^s .10	51 ^s .7 ^s 0 ^s .1	41 ^s .28 ^s 0 ^s .05	56 ^s .5 ^s 1 ^s .9
20	38 ^s .68 ^s 0 ^s .23	22 ^s .9 ^s 1 ^s .3	25 ^s .10 ^s 0 ^s .15	51 ^s .6 ^s 0 ^s .0	41 ^s .23 ^s 0 ^s .11	54 ^s .6 ^s 2 ^s .2
30	38 ^s .91 ^s 0 ^s .28	21 ^s .6 ^s 1 ^s .0	25 ^s .25 ^s 0 ^s .20	51 ^s .6 ^s 0 ^s .3	41 ^s .45 ^s 0 ^s .14	52 ^s .2 ^s 2 ^s .2
June 9	39 ^s .19 ^s 0 ^s .33	20 ^s .6 ^s 0 ^s .7	25 ^s .45 ^s 0 ^s .23	51 ^s .9 ^s 0 ^s .4	41 ^s .59 ^s 0 ^s .19	50 ^s .0 ^s 2 ^s .2
19	39 ^s .52 ^s 0 ^s .37	19 ^s .9 ^s 0 ^s .3	25 ^s .68 ^s 0 ^s .26	52 ^s .3 ^s 0 ^s .6	41 ^s .78 ^s 0 ^s .22	47 ^s .8 ^s 2 ^s .2
29	39 ^s .89 ^s 0 ^s .41	19 ^s .6 ^s 0 ^s .0	25 ^s .94 ^s 0 ^s .28	52 ^s .9 ^s 0 ^s .8	42 ^s .00 ^s 0 ^s .25	45 ^s .6 ^s 2 ^s .2
July 9	40 ^s .30 ^s 0 ^s .42	19 ^s .6 ^s 0 ^s .3	26 ^s .22 ^s 0 ^s .31	53 ^s .7 ^s 0 ^s .9	42 ^s .25 ^s 0 ^s .27	43 ^s .4 ^s 2 ^s .0
19	40 ^s .72 ^s 0 ^s .43	19 ^s .9 ^s 0 ^s .6	26 ^s .53 ^s 0 ^s .33	54 ^s .6 ^s 1 ^s .1	42 ^s .52 ^s 0 ^s .28	41 ^s .4 ^s 1 ^s .8
29	41 ^s .15 ^s 0 ^s .44	20 ^s .5 ^s 0 ^s .9	26 ^s .86 ^s 0 ^s .32	55 ^s .7 ^s 1 ^s .1	42 ^s .80 ^s 0 ^s .29	39 ^s .6 ^s 1 ^s .5
Aug. 8	41 ^s .59 ^s 0 ^s .43	21 ^s .4 ^s 1 ^s .2	27 ^s .18 ^s 0 ^s .32	56 ^s .8 ^s 1 ^s .1	43 ^s .09 ^s 0 ^s .29	38 ^s .1 ^s 1 ^s .2
18	42 ^s .02 ^s 0 ^s .41	22 ^s .6 ^s 1 ^s .4	27 ^s .50 ^s 0 ^s .32	57 ^s .9 ^s 1 ^s .1	43 ^s .38 ^s 0 ^s .29	36 ^s .9 ^s 0 ^s .9
28	42 ^s .43 ^s 0 ^s .40	24 ^s .0 ^s 1 ^s .6	27 ^s .82 ^s 0 ^s .30	59 ^s .0 ^s 1 ^s .1	43 ^s .67 ^s 0 ^s .28	36 ^s .0 ^s 0 ^s .4
Sept. 7	42 ^s .83 ^s 0 ^s .37	25 ^s .6 ^s 1 ^s .8	28 ^s .12 ^s 0 ^s .28	60 ^s .1 ^s 1 ^s .0	43 ^s .95 ^s 0 ^s .27	35 ^s .6 ^s 0 ^s .1
17	43 ^s .20 ^s 0 ^s .34	27 ^s .4 ^s 1 ^s .9	28 ^s .40 ^s 0 ^s .27	61 ^s .1 ^s 0 ^s .9	44 ^s .22 ^s 0 ^s .24	35 ^s .5 ^s 0 ^s .3
27	43 ^s .54 ^s 0 ^s .30	29 ^s .3 ^s 2 ^s .1	28 ^s .67 ^s 0 ^s .24	62 ^s .0 ^s 0 ^s .9	44 ^s .46 ^s 0 ^s .23	35 ^s .8 ^s 0 ^s .7
Oct. 7	43 ^s .84 ^s 0 ^s .27	31 ^s .4 ^s 2 ^s .1	28 ^s .91 ^s 0 ^s .22	62 ^s .9 ^s 0 ^s .7	44 ^s .69 ^s 0 ^s .20	36 ^s .5 ^s 1 ^s .1
17	44 ^s .11 ^s 0 ^s .22	33 ^s .5 ^s 2 ^s .1	29 ^s .13 ^s 0 ^s .19	63 ^s .6 ^s 0 ^s .7	44 ^s .89 ^s 0 ^s .18	37 ^s .6 ^s 1 ^s .4
27	44 ^s .33 ^s 0 ^s .18	35 ^s .6 ^s 2 ^s .0	29 ^s .32 ^s 0 ^s .16	64 ^s .3 ^s 0 ^s .5	45 ^s .07 ^s 0 ^s .14	39 ^s .0 ^s 1 ^s .6
Nov. 6	44 ^s .51 ^s 0 ^s .13	37 ^s .6 ^s 2 ^s .1	29 ^s .48 ^s 0 ^s .13	64 ^s .8 ^s 0 ^s .5	45 ^s .21 ^s 0 ^s .12	40 ^s .6 ^s 1 ^s .8
16	44 ^s .64 ^s 0 ^s .08	39 ^s .7 ^s 1 ^s .9	29 ^s .61 ^s 0 ^s .10	65 ^s .3 ^s 0 ^s .4	45 ^s .33 ^s 0 ^s .08	42 ^s .4 ^s 1 ^s .9
26	44 ^s .72 ^s 0 ^s .03	41 ^s .6 ^s 1 ^s .8	29 ^s .71 ^s 0 ^s .05	65 ^s .7 ^s 0 ^s .3	45 ^s .41 ^s 0 ^s .04	44 ^s .3 ^s 1 ^s .9
Dec. 6	44 ^s .75 ^s 0 ^s .03	43 ^s .4 ^s 1 ^s .6	29 ^s .76 ^s 0 ^s .02	66 ^s .0 ^s 0 ^s .2	45 ^s .45 ^s 0 ^s .01	46 ^s .2 ^s 1 ^s .8
16	44 ^s .72 ^s 0 ^s .08	45 ^s .0 ^s 1 ^s .4	29 ^s .78 ^s 0 ^s .02	66 ^s .2 ^s 0 ^s .1	45 ^s .46 ^s 0 ^s .03	48 ^s .0 ^s 1 ^s .8
26	44 ^s .64 ^s 0 ^s .13	46 ^s .4 ^s 1 ^s .0	29 ^s .76 ^s 0 ^s .06	66 ^s .3 ^s 0 ^s .0	45 ^s .43 ^s 0 ^s .07	49 ^s .8 ^s 1 ^s .7
36	44 ^s .51 ^s 0 ^s .13	47 ^s .4 ^s 1 ^s .0	29 ^s .70 ^s 0 ^s .06	66 ^s .3 ^s 0 ^s .0	45 ^s .36 ^s 0 ^s .07	51 ^s .5 ^s 1 ^s .7

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	♋ Eridani.		♉ Tauri.		♉ Tauri. (Aldebaran)	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	h m 4 5	° ′ 7 11	h m 4 20	° ′ 18 52	h m 4 28	° ′ 16 13
Jan. 1	15° 59' 0.07	45° 4' 1.3	42° 94' 0.05	32° 1' 0.2	9° 42' 0.04	57° 0' 0.3
11	15° 52' 0.10	46° 7' 1.2	42° 89' 0.08	31° 9' 0.2	9° 38' 0.07	56° 7' 0.3
21	15° 42' 0.12	47° 9' 0.9	42° 81' 0.11	31° 7' 0.2	9° 31' 0.12	56° 4' 0.4
31	15° 30' 0.16	48° 8' 0.8	42° 70' 0.15	31° 5' 0.3	9° 19' 0.14	56° 0' 0.3
Feb. 10	15° 14' 0.17	49° 6' 0.4	42° 55' 0.17	31° 2' 0.4	9° 05' 0.17	55° 7' 0.4
20	14° 97' 0.18	50° 0' 0.3	42° 38' 0.18	30° 8' 0.4	8° 88' 0.17	55° 3' 0.3
Mar. 1	14° 79' 0.17	50° 3' 0.0	42° 20' 0.18	30° 4' 0.4	8° 71' 0.18	55° 0' 0.3
11	14° 62' 0.17	50° 3' 0.2	42° 02' 0.18	30° 0' 0.4	8° 53' 0.18	54° 6' 0.4
21	14° 45' 0.14	50° 1' 0.5	41° 84' 0.15	29° 6' 0.4	8° 35' 0.15	54° 3' 0.3
31	14° 31' 0.12	49° 6' 0.7	41° 69' 0.12	29° 2' 0.3	8° 20' 0.13	54° 0' 0.3
Apr. 10	14° 19' 0.08	48° 9' 0.9	41° 57' 0.09	28° 9' 0.3	8° 07' 0.09	53° 7' 0.1
20	14° 11' 0.04	48° 0' 1.2	41° 48' 0.04	28° 6' 0.2	7° 98' 0.05	53° 6' 0.1
30	14° 07' 0.00	46° 8' 1.4	41° 44' 0.00	28° 4' 0.1	7° 93' 0.01	53° 5' 0.1
May 10	14° 07' 0.05	45° 4' 1.6	41° 44' 0.05	28° 3' 0.1	7° 92' 0.05	53° 6' 0.2
20	14° 12' 0.10	43° 8' 1.9	41° 49' 0.11	28° 4' 0.2	7° 97' 0.10	53° 8' 0.3
30	14° 22' 0.14	41° 9' 1.8	41° 60' 0.15	28° 6' 0.3	8° 07' 0.14	54° 1' 0.5
June 9	14° 36' 0.18	40° 1' 2.0	41° 75' 0.19	28° 9' 0.6	8° 21' 0.18	54° 6' 0.6
19	14° 54' 0.21	38° 1' 1.9	41° 94' 0.22	29° 5' 0.6	8° 39' 0.21	55° 2' 0.8
29	14° 75' 0.24	36° 2' 1.9	42° 16' 0.25	30° 1' 0.8	8° 60' 0.24	56° 0' 0.8
July 9	14° 99' 0.26	34° 3' 1.9	42° 41' 0.28	30° 9' 0.8	8° 84' 0.27	56° 8' 0.9
19	15° 25' 0.28	32° 4' 1.6	42° 69' 0.29	31° 7' 0.9	9° 11' 0.29	57° 7' 1.0
29	15° 53' 0.28	30° 8' 1.5	42° 98' 0.31	32° 6' 0.9	9° 40' 0.29	58° 7' 0.9
Aug. 8	15° 81' 0.29	29° 3' 1.2	43° 29' 0.31	33° 5' 0.9	9° 69' 0.31	59° 6' 0.9
18	16° 10' 0.29	28° 1' 0.9	43° 60' 0.31	34° 4' 0.8	10° 00' 0.30	60° 5' 0.8
28	16° 39' 0.28	27° 2' 0.6	43° 91' 0.30	35° 2' 0.8	10° 30' 0.30	61° 3' 0.7
Sept. 7	16° 67' 0.26	26° 6' 0.3	44° 21' 0.29	36° 0' 0.7	10° 60' 0.29	62° 0' 0.6
17	16° 93' 0.26	26° 3' 0.1	44° 50' 0.28	36° 7' 0.6	10° 89' 0.28	62° 6' 0.4
27	17° 19' 0.23	26° 4' 0.5	44° 78' 0.26	37° 3' 0.4	11° 17' 0.26	63° 0' 0.3
Oct. 7	17° 42' 0.21	26° 9' 0.8	45° 04' 0.25	37° 7' 0.3	11° 43' 0.25	63° 3' 0.2
17	17° 63' 0.19	27° 7' 1.0	45° 29' 0.21	38° 0' 0.2	11° 68' 0.22	63° 5' 0.0
27	17° 82' 0.16	28° 7' 1.3	45° 50' 0.20	38° 2' 0.1	11° 90' 0.20	63° 5' 0.1
Nov. 6	17° 98' 0.12	30° 0' 1.5	45° 70' 0.17	38° 3' 0.0	12° 10' 0.17	63° 4' 0.1
16	18° 10' 0.10	31° 5' 1.6	45° 87' 0.14	38° 3' 0.0	12° 27' 0.14	63° 3' 0.3
26	18° 20' 0.07	33° 1' 1.5	46° 01' 0.09	38° 3' 0.1	12° 41' 0.10	63° 0' 0.3
Dec. 6	18° 27' 0.03	34° 6' 1.6	46° 10' 0.06	38° 2' 0.1	12° 51' 0.07	62° 7' 0.3
16	18° 30' 0.01	36° 2' 1.5	46° 16' 0.02	38° 1' 0.2	12° 58' 0.02	62° 4' 0.3
26	18° 29' 0.05	37° 7' 1.4	46° 18' 0.02	37° 9' 0.2	12° 60' 0.02	62° 1' 0.3
36	18° 24' 0.05	39° 1' 1.4	46° 16' 0.02	37° 7' 0.2	12° 58' 0.02	61° 8' 0.3

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	♌ Aurigæ.		♉ Leporis.		♊ Aurigæ. (Capella)	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 4 ^m 48	[°] 32 ['] 56	^h 4 ^m 59	[°] 22 ['] 33	^h 5 ^m 6	[°] 45 ['] 51
Jan. 1	11 ^s 11 ^s 0 ^s 02	50 ^s 3 ^s 0 ^s 5	44 ^s 24 ^s 0 ^s 04	30 ^s 9 ^s 2 ^s 2	42 ^s 01 ^s 0 ^s 02	20 ^s 1 ^s 1 ^s 2
11	11 ^s 09 ^s 0 ^s 08	50 ^s 8 ^s 0 ^s 5	44 ^s 20 ^s 0 ^s 09	33 ^s 1 ^s 1 ^s 9	41 ^s 99 ^s 0 ^s 08	21 ^s 3 ^s 1 ^s 2
21	11 ^s 01 ^s 0 ^s 12	51 ^s 3 ^s 0 ^s 3	44 ^s 11 ^s 0 ^s 13	35 ^s 0 ^s 1 ^s 6	41 ^s 91 ^s 0 ^s 14	22 ^s 5 ^s 0 ^s 9
31	10 ^s 89 ^s 0 ^s 15	51 ^s 6 ^s 0 ^s 2	43 ^s 98 ^s 0 ^s 16	36 ^s 6 ^s 1 ^s 2	41 ^s 77 ^s 0 ^s 19	23 ^s 4 ^s 0 ^s 7
Feb. 10	10 ^s 74 ^s 0 ^s 18	51 ^s 8 ^s 0 ^s 0	43 ^s 82 ^s 0 ^s 19	37 ^s 8 ^s 0 ^s 9	41 ^s 58 ^s 0 ^s 22	24 ^s 1 ^s 0 ^s 4
20	10 ^s 56 ^s 0 ^s 21	51 ^s 8 ^s 0 ^s 2	43 ^s 63 ^s 0 ^s 20	38 ^s 7 ^s 0 ^s 5	41 ^s 36 ^s 0 ^s 25	24 ^s 5 ^s 0 ^s 2
Mar. 1	10 ^s 35 ^s 0 ^s 22	51 ^s 6 ^s 0 ^s 3	43 ^s 43 ^s 0 ^s 20	39 ^s 2 ^s 0 ^s 2	41 ^s 11 ^s 0 ^s 26	24 ^s 7 ^s 0 ^s 2
11	10 ^s 13 ^s 0 ^s 20	51 ^s 3 ^s 0 ^s 5	43 ^s 23 ^s 0 ^s 21	39 ^s 4 ^s 0 ^s 3	40 ^s 85 ^s 0 ^s 25	24 ^s 5 ^s 0 ^s 5
21	9 ^s 93 ^s 0 ^s 19	50 ^s 8 ^s 0 ^s 7	43 ^s 02 ^s 0 ^s 20	39 ^s 1 ^s 0 ^s 6	40 ^s 60 ^s 0 ^s 24	24 ^s 0 ^s 0 ^s 8
31	9 ^s 74 ^s 0 ^s 16	50 ^s 1 ^s 0 ^s 7	42 ^s 82 ^s 0 ^s 17	38 ^s 5 ^s 0 ^s 9	40 ^s 36 ^s 0 ^s 21	23 ^s 2 ^s 1 ^s 0
Apr. 10	9 ^s 58 ^s 0 ^s 12	49 ^s 4 ^s 0 ^s 8	42 ^s 65 ^s 0 ^s 14	37 ^s 6 ^s 1 ^s 3	40 ^s 15 ^s 0 ^s 17	22 ^s 2 ^s 1 ^s 2
20	9 ^s 46 ^s 0 ^s 08	48 ^s 6 ^s 0 ^s 8	42 ^s 51 ^s 0 ^s 11	36 ^s 3 ^s 1 ^s 6	39 ^s 98 ^s 0 ^s 12	21 ^s 0 ^s 1 ^s 3
30	9 ^s 38 ^s 0 ^s 02	47 ^s 8 ^s 0 ^s 9	42 ^s 40 ^s 0 ^s 06	34 ^s 7 ^s 1 ^s 9	39 ^s 86 ^s 0 ^s 06	19 ^s 7 ^s 1 ^s 4
May 10	9 ^s 36 ^s 0 ^s 02	46 ^s 9 ^s 0 ^s 8	42 ^s 34 ^s 0 ^s 02	32 ^s 8 ^s 2 ^s 1	39 ^s 80 ^s 0 ^s 00	18 ^s 3 ^s 1 ^s 5
20	9 ^s 38 ^s 0 ^s 08	46 ^s 1 ^s 0 ^s 7	42 ^s 32 ^s 0 ^s 02	30 ^s 7 ^s 2 ^s 2	39 ^s 80 ^s 0 ^s 07	16 ^s 8 ^s 1 ^s 4
30	9 ^s 46 ^s 0 ^s 15	45 ^s 4 ^s 0 ^s 6	42 ^s 34 ^s 0 ^s 08	28 ^s 5 ^s 2 ^s 7	39 ^s 87 ^s 0 ^s 14	15 ^s 4 ^s 1 ^s 5
June 9	9 ^s 61 ^s 0 ^s 19	44 ^s 8 ^s 0 ^s 4	42 ^s 42 ^s 0 ^s 12	25 ^s 8 ^s 3 ^s 5	40 ^s 01 ^s 0 ^s 19	13 ^s 9 ^s 1 ^s 3
19	9 ^s 80 ^s 0 ^s 22	44 ^s 4 ^s 0 ^s 3	42 ^s 54 ^s 0 ^s 16	23 ^s 3 ^s 2 ^s 5	40 ^s 20 ^s 0 ^s 23	12 ^s 6 ^s 1 ^s 0
29	10 ^s 02 ^s 0 ^s 26	44 ^s 1 ^s 0 ^s 0	42 ^s 70 ^s 0 ^s 20	20 ^s 8 ^s 2 ^s 4	40 ^s 43 ^s 0 ^s 28	11 ^s 6 ^s 0 ^s 9
July 9	10 ^s 28 ^s 0 ^s 29	44 ^s 1 ^s 0 ^s 0	42 ^s 90 ^s 0 ^s 23	18 ^s 4 ^s 2 ^s 3	40 ^s 71 ^s 0 ^s 33	10 ^s 7 ^s 0 ^s 7
19	10 ^s 57 ^s 0 ^s 31	44 ^s 1 ^s 0 ^s 1	43 ^s 13 ^s 0 ^s 25	16 ^s 1 ^s 2 ^s 1	41 ^s 04 ^s 0 ^s 36	10 ^s 0 ^s 0 ^s 5
29	10 ^s 88 ^s 0 ^s 33	44 ^s 2 ^s 0 ^s 4	43 ^s 38 ^s 0 ^s 27	14 ^s 0 ^s 1 ^s 8	41 ^s 40 ^s 0 ^s 37	9 ^s 5 ^s 0 ^s 4
Aug. 8	11 ^s 21 ^s 0 ^s 34	44 ^s 6 ^s 0 ^s 4	43 ^s 65 ^s 0 ^s 28	12 ^s 2 ^s 1 ^s 5	41 ^s 77 ^s 0 ^s 39	9 ^s 1 ^s 0 ^s 1
18	11 ^s 55 ^s 0 ^s 34	45 ^s 0 ^s 0 ^s 5	43 ^s 93 ^s 0 ^s 29	10 ^s 7 ^s 1 ^s 1	42 ^s 16 ^s 0 ^s 40	9 ^s 0 ^s 0 ^s 1
28	11 ^s 89 ^s 0 ^s 34	45 ^s 5 ^s 0 ^s 5	44 ^s 22 ^s 0 ^s 29	9 ^s 6 ^s 0 ^s 6	42 ^s 56 ^s 0 ^s 41	9 ^s 1 ^s 0 ^s 3
Sept. 7	12 ^s 23 ^s 0 ^s 34	46 ^s 0 ^s 0 ^s 6	44 ^s 51 ^s 0 ^s 29	9 ^s 0 ^s 0 ^s 1	42 ^s 97 ^s 0 ^s 41	9 ^s 4 ^s 0 ^s 4
17	12 ^s 57 ^s 0 ^s 33	46 ^s 6 ^s 0 ^s 7	44 ^s 80 ^s 0 ^s 29	8 ^s 9 ^s 0 ^s 3	43 ^s 38 ^s 0 ^s 39	9 ^s 8 ^s 0 ^s 6
27	12 ^s 90 ^s 0 ^s 31	47 ^s 3 ^s 0 ^s 6	45 ^s 09 ^s 0 ^s 27	9 ^s 2 ^s 0 ^s 8	43 ^s 77 ^s 0 ^s 39	10 ^s 4 ^s 0 ^s 7
Oct. 7	13 ^s 21 ^s 0 ^s 30	47 ^s 9 ^s 0 ^s 7	45 ^s 36 ^s 0 ^s 25	10 ^s 0 ^s 1 ^s 3	44 ^s 16 ^s 0 ^s 37	11 ^s 1 ^s 0 ^s 9
17	13 ^s 51 ^s 0 ^s 27	48 ^s 6 ^s 0 ^s 7	45 ^s 61 ^s 0 ^s 24	11 ^s 3 ^s 1 ^s 7	44 ^s 53 ^s 0 ^s 34	12 ^s 0 ^s 1 ^s 0
27	13 ^s 78 ^s 0 ^s 25	49 ^s 3 ^s 0 ^s 7	45 ^s 85 ^s 0 ^s 20	13 ^s 0 ^s 2 ^s 0	44 ^s 87 ^s 0 ^s 31	13 ^s 0 ^s 1 ^s 2
Nov. 6	14 ^s 03 ^s 0 ^s 22	50 ^s 0 ^s 0 ^s 7	46 ^s 05 ^s 0 ^s 18	15 ^s 0 ^s 2 ^s 2	45 ^s 18 ^s 0 ^s 28	14 ^s 2 ^s 1 ^s 2
16	14 ^s 25 ^s 0 ^s 18	50 ^s 7 ^s 0 ^s 7	46 ^s 23 ^s 0 ^s 14	17 ^s 2 ^s 2 ^s 5	45 ^s 46 ^s 0 ^s 24	15 ^s 4 ^s 1 ^s 4
26	14 ^s 43 ^s 0 ^s 14	51 ^s 4 ^s 0 ^s 7	46 ^s 37 ^s 0 ^s 11	19 ^s 7 ^s 2 ^s 5	45 ^s 70 ^s 0 ^s 19	16 ^s 8 ^s 1 ^s 4
Dec. 6	14 ^s 57 ^s 0 ^s 10	52 ^s 1 ^s 0 ^s 7	46 ^s 48 ^s 0 ^s 07	22 ^s 2 ^s 2 ^s 6	45 ^s 89 ^s 0 ^s 13	18 ^s 2 ^s 1 ^s 4
16	14 ^s 67 ^s 0 ^s 05	52 ^s 8 ^s 0 ^s 7	46 ^s 55 ^s 0 ^s 02	24 ^s 8 ^s 2 ^s 4	46 ^s 02 ^s 0 ^s 08	19 ^s 6 ^s 1 ^s 4
26	14 ^s 72 ^s 0 ^s 01	53 ^s 5 ^s 0 ^s 6	46 ^s 57 ^s 0 ^s 03	27 ^s 2 ^s 2 ^s 2	46 ^s 10 ^s 0 ^s 00	21 ^s 0 ^s 1 ^s 4
36	14 ^s 71 ^s 0 ^s 01	54 ^s 1 ^s 0 ^s 6	46 ^s 54 ^s 0 ^s 03	29 ^s 4 ^s 2 ^s 2	46 ^s 10 ^s 0 ^s 00	22 ^s 4 ^s 1 ^s 4

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Orionis. (Rigel)		β Tauri.		δ Orionis.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 5	^m 8	^h 5	^m 17	^h 5	^m 25
	[°] 8	['] 21	[°] 28	['] 29	[°] 0	['] 24
Jan. 1	2 ^s 24 ^s 0 ^s 02 ^s	48 ^s 9 ^s 1 ^s 6 ^s	44 ^s 38 ^s 0 ^s 00 ^s	17 ^s 2 ^s 0 ^s 3 ^s	5 ^s 79 ^s 0 ^s 00 ^s	16 ^s 9 ^s 1 ^s 3 ^s
11	2 ^s 22 ^s 0 ^s 06 ^s	50 ^s 5 ^s 1 ^s 4 ^s	44 ^s 38 ^s 0 ^s 04 ^s	17 ^s 5 ^s 0 ^s 3 ^s	5 ^s 79 ^s 0 ^s 04 ^s	18 ^s 2 ^s 1 ^s 1 ^s
21	2 ^s 16 ^s 0 ^s 10 ^s	51 ^s 9 ^s 1 ^s 3 ^s	44 ^s 34 ^s 0 ^s 09 ^s	17 ^s 8 ^s 0 ^s 3 ^s	5 ^s 75 ^s 0 ^s 08 ^s	19 ^s 3 ^s 1 ^s 0 ^s
31	2 ^s 06 ^s 0 ^s 13 ^s	53 ^s 2 ^s 1 ^s 0 ^s	44 ^s 25 ^s 0 ^s 14 ^s	18 ^s 1 ^s 0 ^s 2 ^s	5 ^s 67 ^s 0 ^s 12 ^s	20 ^s 3 ^s 0 ^s 8 ^s
Feb. 10	1 ^s 93 ^s 0 ^s 16 ^s	54 ^s 2 ^s 0 ^s 7 ^s	44 ^s 11 ^s 0 ^s 16 ^s	18 ^s 3 ^s 0 ^s 0 ^s	5 ^s 55 ^s 0 ^s 15 ^s	21 ^s 1 ^s 0 ^s 6 ^s
20	1 ^s 77 ^s 0 ^s 18 ^s	54 ^s 9 ^s 0 ^s 5 ^s	43 ^s 95 ^s 0 ^s 19 ^s	18 ^s 3 ^s 0 ^s 0 ^s	5 ^s 40 ^s 0 ^s 16 ^s	21 ^s 7 ^s 0 ^s 4 ^s
Mar. 1	1 ^s 59 ^s 0 ^s 19 ^s	55 ^s 4 ^s 0 ^s 2 ^s	43 ^s 76 ^s 0 ^s 20 ^s	18 ^s 3 ^s 0 ^s 2 ^s	5 ^s 24 ^s 0 ^s 19 ^s	22 ^s 1 ^s 0 ^s 3 ^s
11	1 ^s 40 ^s 0 ^s 18 ^s	55 ^s 6 ^s 0 ^s 0 ^s	43 ^s 56 ^s 0 ^s 20 ^s	18 ^s 1 ^s 0 ^s 3 ^s	5 ^s 05 ^s 0 ^s 19 ^s	22 ^s 4 ^s 0 ^s 1 ^s
21	1 ^s 22 ^s 0 ^s 18 ^s	55 ^s 6 ^s 0 ^s 3 ^s	43 ^s 36 ^s 0 ^s 19 ^s	17 ^s 8 ^s 0 ^s 3 ^s	4 ^s 86 ^s 0 ^s 17 ^s	22 ^s 5 ^s 0 ^s 1 ^s
31	1 ^s 04 ^s 0 ^s 15 ^s	55 ^s 3 ^s 0 ^s 6 ^s	43 ^s 17 ^s 0 ^s 17 ^s	17 ^s 5 ^s 0 ^s 5 ^s	4 ^s 69 ^s 0 ^s 16 ^s	22 ^s 4 ^s 0 ^s 3 ^s
Apr. 10	0 ^s 89 ^s 0 ^s 13 ^s	54 ^s 7 ^s 0 ^s 8 ^s	43 ^s 00 ^s 0 ^s 14 ^s	17 ^s 0 ^s 0 ^s 5 ^s	4 ^s 53 ^s 0 ^s 12 ^s	22 ^s 1 ^s 0 ^s 4 ^s
20	0 ^s 76 ^s 0 ^s 10 ^s	53 ^s 9 ^s 1 ^s 0 ^s	42 ^s 86 ^s 0 ^s 09 ^s	16 ^s 5 ^s 0 ^s 6 ^s	4 ^s 41 ^s 0 ^s 10 ^s	21 ^s 7 ^s 0 ^s 7 ^s
30	0 ^s 66 ^s 0 ^s 04 ^s	52 ^s 9 ^s 1 ^s 2 ^s	42 ^s 77 ^s 0 ^s 06 ^s	15 ^s 9 ^s 0 ^s 6 ^s	4 ^s 31 ^s 0 ^s 06 ^s	21 ^s 0 ^s 0 ^s 8 ^s
May 10	0 ^s 62 ^s 0 ^s 01 ^s	51 ^s 7 ^s 1 ^s 4 ^s	42 ^s 71 ^s 0 ^s 00 ^s	15 ^s 3 ^s 0 ^s 5 ^s	4 ^s 25 ^s 0 ^s 02 ^s	20 ^s 2 ^s 1 ^s 0 ^s
20	0 ^s 61 ^s 0 ^s 03 ^s	50 ^s 3 ^s 1 ^s 6 ^s	42 ^s 71 ^s 0 ^s 05 ^s	14 ^s 8 ^s 0 ^s 5 ^s	4 ^s 23 ^s 0 ^s 03 ^s	19 ^s 2 ^s 1 ^s 1 ^s
30	0 ^s 64 ^s 0 ^s 08 ^s	48 ^s 7 ^s 1 ^s 9 ^s	42 ^s 76 ^s 0 ^s 09 ^s	14 ^s 3 ^s 0 ^s 4 ^s	4 ^s 26 ^s 0 ^s 07 ^s	18 ^s 1 ^s 1 ^s 3 ^s
June 9	0 ^s 72 ^s 0 ^s 13 ^s	46 ^s 8 ^s 1 ^s 8 ^s	42 ^s 85 ^s 0 ^s 15 ^s	13 ^s 9 ^s 0 ^s 3 ^s	4 ^s 33 ^s 0 ^s 12 ^s	16 ^s 8 ^s 1 ^s 5 ^s
19	0 ^s 85 ^s 0 ^s 16 ^s	45 ^s 0 ^s 1 ^s 9 ^s	43 ^s 00 ^s 0 ^s 20 ^s	13 ^s 6 ^s 0 ^s 1 ^s	4 ^s 45 ^s 0 ^s 15 ^s	15 ^s 3 ^s 1 ^s 4 ^s
29	1 ^s 01 ^s 0 ^s 19 ^s	43 ^s 1 ^s 1 ^s 9 ^s	43 ^s 20 ^s 0 ^s 23 ^s	13 ^s 5 ^s 0 ^s 1 ^s	4 ^s 60 ^s 0 ^s 18 ^s	13 ^s 9 ^s 1 ^s 5 ^s
July 9	1 ^s 20 ^s 0 ^s 22 ^s	41 ^s 2 ^s 1 ^s 8 ^s	43 ^s 43 ^s 0 ^s 25 ^s	13 ^s 4 ^s 0 ^s 0 ^s	4 ^s 78 ^s 0 ^s 21 ^s	12 ^s 4 ^s 1 ^s 4 ^s
19	1 ^s 42 ^s 0 ^s 24 ^s	39 ^s 4 ^s 1 ^s 7 ^s	43 ^s 68 ^s 0 ^s 28 ^s	13 ^s 4 ^s 0 ^s 2 ^s	4 ^s 99 ^s 0 ^s 24 ^s	11 ^s 0 ^s 1 ^s 3 ^s
29	1 ^s 66 ^s 0 ^s 26 ^s	37 ^s 7 ^s 1 ^s 4 ^s	43 ^s 96 ^s 0 ^s 30 ^s	13 ^s 6 ^s 0 ^s 3 ^s	5 ^s 23 ^s 0 ^s 25 ^s	9 ^s 7 ^s 1 ^s 3 ^s
Aug. 8	1 ^s 92 ^s 0 ^s 27 ^s	36 ^s 3 ^s 1 ^s 3 ^s	44 ^s 26 ^s 0 ^s 31 ^s	13 ^s 9 ^s 0 ^s 2 ^s	5 ^s 48 ^s 0 ^s 27 ^s	8 ^s 4 ^s 1 ^s 0 ^s
18	2 ^s 19 ^s 0 ^s 28 ^s	35 ^s 0 ^s 1 ^s 0 ^s	44 ^s 57 ^s 0 ^s 33 ^s	14 ^s 1 ^s 0 ^s 3 ^s	5 ^s 75 ^s 0 ^s 27 ^s	7 ^s 4 ^s 0 ^s 8 ^s
28	2 ^s 47 ^s 0 ^s 28 ^s	34 ^s 0 ^s 0 ^s 6 ^s	44 ^s 90 ^s 0 ^s 32 ^s	14 ^s 4 ^s 0 ^s 2 ^s	6 ^s 02 ^s 0 ^s 28 ^s	6 ^s 6 ^s 0 ^s 6 ^s
Sept. 7	2 ^s 75 ^s 0 ^s 29 ^s	33 ^s 4 ^s 0 ^s 2 ^s	45 ^s 22 ^s 0 ^s 32 ^s	14 ^s 6 ^s 0 ^s 4 ^s	6 ^s 30 ^s 0 ^s 29 ^s	6 ^s 0 ^s 0 ^s 3 ^s
17	3 ^s 04 ^s 0 ^s 27 ^s	33 ^s 2 ^s 0 ^s 1 ^s	45 ^s 55 ^s 0 ^s 32 ^s	15 ^s 0 ^s 0 ^s 3 ^s	6 ^s 59 ^s 0 ^s 28 ^s	5 ^s 7 ^s 0 ^s 1 ^s
27	3 ^s 31 ^s 0 ^s 27 ^s	33 ^s 3 ^s 0 ^s 5 ^s	45 ^s 87 ^s 0 ^s 32 ^s	15 ^s 3 ^s 0 ^s 3 ^s	6 ^s 87 ^s 0 ^s 27 ^s	5 ^s 8 ^s 0 ^s 3 ^s
Oct. 7	3 ^s 58 ^s 0 ^s 25 ^s	33 ^s 8 ^s 0 ^s 8 ^s	46 ^s 19 ^s 0 ^s 30 ^s	15 ^s 6 ^s 0 ^s 3 ^s	7 ^s 14 ^s 0 ^s 26 ^s	6 ^s 1 ^s 0 ^s 5 ^s
17	3 ^s 83 ^s 0 ^s 23 ^s	34 ^s 6 ^s 1 ^s 2 ^s	46 ^s 49 ^s 0 ^s 28 ^s	15 ^s 9 ^s 0 ^s 2 ^s	7 ^s 40 ^s 0 ^s 25 ^s	6 ^s 6 ^s 1 ^s 0 ^s
27	4 ^s 06 ^s 0 ^s 22 ^s	35 ^s 8 ^s 1 ^s 4 ^s	46 ^s 77 ^s 0 ^s 27 ^s	16 ^s 1 ^s 0 ^s 3 ^s	7 ^s 65 ^s 0 ^s 23 ^s	7 ^s 6 ^s 1 ^s 1 ^s
Nov. 6	4 ^s 28 ^s 0 ^s 19 ^s	37 ^s 2 ^s 1 ^s 6 ^s	47 ^s 04 ^s 0 ^s 24 ^s	16 ^s 4 ^s 0 ^s 2 ^s	7 ^s 88 ^s 0 ^s 21 ^s	8 ^s 7 ^s 1 ^s 3 ^s
16	4 ^s 47 ^s 0 ^s 15 ^s	40 ^s 6 ^s 1 ^s 8 ^s	47 ^s 28 ^s 0 ^s 17 ^s	16 ^s 6 ^s 0 ^s 4 ^s	8 ^s 09 ^s 0 ^s 18 ^s	10 ^s 0 ^s 1 ^s 4 ^s
26	4 ^s 62 ^s 0 ^s 12 ^s	42 ^s 5 ^s 1 ^s 8 ^s	47 ^s 48 ^s 0 ^s 13 ^s	17 ^s 0 ^s 0 ^s 3 ^s	8 ^s 27 ^s 0 ^s 14 ^s	11 ^s 4 ^s 1 ^s 4 ^s
Dec. 6	4 ^s 74 ^s 0 ^s 09 ^s	44 ^s 3 ^s 1 ^s 8 ^s	47 ^s 65 ^s 0 ^s 07 ^s	17 ^s 3 ^s 0 ^s 4 ^s	8 ^s 41 ^s 0 ^s 11 ^s	12 ^s 8 ^s 1 ^s 5 ^s
16	4 ^s 83 ^s 0 ^s 05 ^s	46 ^s 1 ^s 1 ^s 7 ^s	47 ^s 88 ^s 0 ^s 03 ^s	18 ^s 0 ^s 0 ^s 3 ^s	8 ^s 52 ^s 0 ^s 07 ^s	14 ^s 3 ^s 1 ^s 4 ^s
26	4 ^s 88 ^s 0 ^s 00 ^s	47 ^s 8 ^s 1 ^s 7 ^s	47 ^s 88 ^s 0 ^s 03 ^s	18 ^s 3 ^s 0 ^s 3 ^s	8 ^s 59 ^s 0 ^s 02 ^s	15 ^s 7 ^s 1 ^s 3 ^s
36	4 ^s 88 ^s 0 ^s 00 ^s	47 ^s 8 ^s 1 ^s 7 ^s	47 ^s 88 ^s 0 ^s 03 ^s	18 ^s 3 ^s 0 ^s 3 ^s	8 ^s 61 ^s 0 ^s 02 ^s	17 ^s 0 ^s 1 ^s 3 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Leporis.		ϵ Orionis.		α Columbæ.							
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. South.						
	^h 5	^m 26	^o 17	['] 55	^h 5	^m 29	^o 1	['] 17	^h 5	^m 34	^o 34	['] 8
Jan. 1	46 ^s .11	0 ^s .02	28 ^s .0	0 ^s .00	37 ^s .1	1 ^s .3	45 ^s .85	0 ^s .04	62 ^s .8	2 ^s .8		
11	46 ^s .09	0 ^s .06	30 ^s .1	0 ^s .03	38 ^s .4	1 ^s .2	45 ^s .81	0 ^s .09	65 ^s .6	2 ^s .8		
21	46 ^s .03	0 ^s .10	32 ^s .0	0 ^s .08	39 ^s .6	1 ^s .0	45 ^s .72	0 ^s .13	68 ^s .1	2 ^s .1		
31	45 ^s .93	0 ^s .14	33 ^s .6	0 ^s .12	40 ^s .6	0 ^s .9	45 ^s .59	0 ^s .17	70 ^s .2	1 ^s .8		
Feb. 10	45 ^s .79	0 ^s .16	34 ^s .9	0 ^s .15	41 ^s .5	0 ^s .6	45 ^s .42	0 ^s .21	72 ^s .0	1 ^s .3		
20	45 ^s .63	0 ^s .19	35 ^s .9	0 ^s .17	42 ^s .1	0 ^s .5	45 ^s .21	0 ^s .23	73 ^s .3	0 ^s .9		
Mar. 1	45 ^s .44	0 ^s .20	36 ^s .6	0 ^s .18	42 ^s .6	0 ^s .2	44 ^s .98	0 ^s .24	74 ^s .2	0 ^s .4		
11	45 ^s .24	0 ^s .21	36 ^s .9	0 ^s .18	42 ^s .8	0 ^s .1	44 ^s .74	0 ^s .25	74 ^s .6	0 ^s .0		
21	45 ^s .03	0 ^s .19	36 ^s .9	0 ^s .18	42 ^s .9	0 ^s .1	44 ^s .49	0 ^s .24	74 ^s .6	0 ^s .5		
31	44 ^s .84	0 ^s .18	36 ^s .5	0 ^s .16	42 ^s .8	0 ^s .3	44 ^s .25	0 ^s .22	74 ^s .1	0 ^s .9		
Apr. 10	44 ^s .66	0 ^s .15	35 ^s .8	0 ^s .13	42 ^s .5	0 ^s .5	44 ^s .03	0 ^s .20	73 ^s .2	1 ^s .3		
20	44 ^s .51	0 ^s .11	34 ^s .9	0 ^s .10	42 ^s .0	0 ^s .6	43 ^s .83	0 ^s .16	71 ^s .9	1 ^s .7		
30	44 ^s .40	0 ^s .08	33 ^s .6	0 ^s .07	41 ^s .4	0 ^s .9	43 ^s .67	0 ^s .12	70 ^s .2	2 ^s .0		
May 10	44 ^s .32	0 ^s .04	32 ^s .0	0 ^s .02	40 ^s .5	1 ^s .0	43 ^s .55	0 ^s .08	68 ^s .2	2 ^s .3		
20	44 ^s .28	0 ^s .01	30 ^s .3	0 ^s .03	39 ^s .5	1 ^s .2	43 ^s .47	0 ^s .02	65 ^s .9	2 ^s .5		
30	44 ^s .29	0 ^s .05	28 ^s .3	0 ^s .06	38 ^s .3	1 ^s .3	43 ^s .45	0 ^s .02	63 ^s .4	2 ^s .8		
June 9	44 ^s .34	0 ^s .11	26 ^s .2	0 ^s .11	37 ^s .0	1 ^s .5	43 ^s .47	0 ^s .08	60 ^s .6	3 ^s .1		
19	44 ^s .45	0 ^s .13	23 ^s .7	0 ^s .15	35 ^s .5	1 ^s .5	43 ^s .55	0 ^s .12	57 ^s .5	2 ^s .9		
29	44 ^s .58	0 ^s .17	21 ^s .5	0 ^s .18	34 ^s .0	1 ^s .5	43 ^s .67	0 ^s .16	54 ^s .6	2 ^s .8		
July 9	44 ^s .75	0 ^s .21	19 ^s .2	0 ^s .21	32 ^s .5	1 ^s .4	43 ^s .83	0 ^s .20	51 ^s .8	2 ^s .6		
19	44 ^s .96	0 ^s .23	17 ^s .0	0 ^s .23	31 ^s .1	1 ^s .4	44 ^s .03	0 ^s .23	49 ^s .2	2 ^s .5		
29	45 ^s .19	0 ^s .25	15 ^s .1	0 ^s .25	29 ^s .7	1 ^s .2	44 ^s .26	0 ^s .26	46 ^s .7	2 ^s .2		
Aug. 8	45 ^s .44	0 ^s .26	13 ^s .3	0 ^s .26	28 ^s .5	1 ^s .1	44 ^s .52	0 ^s .28	44 ^s .5	1 ^s .7		
18	45 ^s .70	0 ^s .28	11 ^s .8	0 ^s .28	27 ^s .4	0 ^s .8	44 ^s .80	0 ^s .31	42 ^s .8	1 ^s .4		
28	45 ^s .98	0 ^s .29	10 ^s .7	0 ^s .28	26 ^s .6	0 ^s .6	45 ^s .11	0 ^s .31	41 ^s .4	0 ^s .8		
Sept. 7	46 ^s .27	0 ^s .29	10 ^s .0	0 ^s .28	26 ^s .0	0 ^s .2	45 ^s .42	0 ^s .31	40 ^s .6	0 ^s .3		
17	46 ^s .56	0 ^s .28	9 ^s .8	0 ^s .28	25 ^s .8	0 ^s .0	45 ^s .73	0 ^s .32	40 ^s .3	0 ^s .2		
27	46 ^s .84	0 ^s .27	10 ^s .0	0 ^s .27	25 ^s .8	0 ^s .4	46 ^s .05	0 ^s .30	40 ^s .5	0 ^s .8		
Oct. 7	47 ^s .11	0 ^s .27	10 ^s .6	0 ^s .27	26 ^s .2	0 ^s .6	46 ^s .35	0 ^s .30	41 ^s .3	1 ^s .4		
17	47 ^s .38	0 ^s .25	11 ^s .7	0 ^s .25	26 ^s .8	0 ^s .9	46 ^s .65	0 ^s .27	42 ^s .7	1 ^s .9		
27	47 ^s .63	0 ^s .23	13 ^s .1	0 ^s .23	27 ^s .7	1 ^s .1	46 ^s .92	0 ^s .25	44 ^s .6	2 ^s .3		
Nov. 6	47 ^s .86	0 ^s .21	14 ^s .9	0 ^s .21	28 ^s .8	1 ^s .4	47 ^s .17	0 ^s .22	46 ^s .9	2 ^s .6		
16	48 ^s .07	0 ^s .17	17 ^s .0	0 ^s .18	30 ^s .2	1 ^s .4	47 ^s .39	0 ^s .18	49 ^s .5	2 ^s .9		
26	48 ^s .24	0 ^s .13	19 ^s .2	0 ^s .15	31 ^s .6	1 ^s .5	47 ^s .57	0 ^s .14	52 ^s .4	3 ^s .0		
Dec. 6	48 ^s .37	0 ^s .10	21 ^s .6	0 ^s .11	33 ^s .1	1 ^s .6	47 ^s .71	0 ^s .09	55 ^s .4	3 ^s .1		
16	48 ^s .47	0 ^s .05	24 ^s .0	0 ^s .07	34 ^s .7	1 ^s .5	47 ^s .80	0 ^s .04	58 ^s .5	3 ^s .0		
26	48 ^s .52	0 ^s .01	26 ^s .3	0 ^s .03	36 ^s .2	1 ^s .3	47 ^s .84	0 ^s .01	61 ^s .5	2 ^s .9		
36	48 ^s .53	0 ^s .01	28 ^s .5	0 ^s .03	37 ^s .5	1 ^s .3	47 ^s .83	0 ^s .01	64 ^s .4	2 ^s .9		

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Orionis.		ν Orionis.		μ Geminorum.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h ^m 5 47	[°] ['] 7 22	^h ^m 5 59	[°] ['] 14 46	^h ^m 6 14	[°] ['] 22 34
Jan. 1	50° 85' 00"	36° 0' 0"	50° 83' 00"	46° 8' 0"	46° 48' 00"	40° 7' 0"
11	50° 88' 00"	35° 1' 0"	50° 88' 00"	46° 4' 0"	46° 54' 00"	40° 7' 0"
21	50° 86' 00"	34° 3' 0"	50° 87' 00"	45° 9' 0"	46° 55' 00"	40° 7' 0"
31	50° 80' 00"	33° 6' 0"	50° 82' 00"	45° 6' 0"	46° 51' 00"	40° 8' 0"
		0° 5'		0° 9'		0° 1'
Feb. 10	50° 70' 00"	33° 1' 0"	50° 73' 00"	45° 3' 0"	46° 43' 00"	40° 9' 0"
20	50° 56' 00"	32° 6' 0"	50° 60' 00"	45° 2' 0"	46° 30' 00"	41° 0' 0"
Mar. 1	50° 40' 00"	32° 3' 0"	50° 44' 00"	45° 0' 0"	46° 14' 00"	41° 1' 0"
11	50° 22' 00"	32° 1' 0"	50° 26' 00"	44° 9' 0"	45° 96' 00"	41° 2' 0"
		0° 1'		0° 19'		0° 0'
21	50° 04' 00"	32° 0' 0"	50° 07' 00"	44° 8' 0"	45° 77' 00"	41° 2' 0"
31	49° 86' 00"	32° 0' 0"	49° 89' 00"	44° 8' 0"	45° 58' 00"	41° 2' 0"
Apr. 10	49° 70' 00"	32° 1' 0"	49° 72' 00"	44° 8' 0"	45° 40' 00"	41° 1' 0"
20	49° 56' 00"	32° 3' 0"	49° 57' 00"	44° 8' 0"	45° 24' 00"	40° 9' 0"
		0° 3'		0° 11'		0° 1'
30	49° 45' 00"	32° 6' 0"	49° 46' 00"	44° 8' 0"	45° 11' 00"	40° 8' 0"
May 10	49° 38' 00"	33° 1' 0"	49° 38' 00"	45° 0' 0"	45° 01' 00"	40° 6' 0"
20	49° 35' 00"	33° 6' 0"	49° 34' 00"	45° 1' 0"	44° 96' 00"	40° 4' 0"
30	49° 36' 00"	34° 3' 0"	49° 34' 00"	45° 4' 0"	44° 96' 00"	40° 2' 0"
		0° 8'		0° 5'		0° 1'
June 9	49° 42' 00"	35° 1' 0"	49° 39' 00"	45° 7' 0"	44° 99' 00"	40° 1' 0"
19	49° 52' 00"	36° 0' 0"	49° 48' 00"	46° 1' 0"	45° 07' 00"	40° 0' 0"
29	49° 65' 00"	37° 0' 0"	49° 61' 00"	46° 7' 0"	45° 21' 00"	39° 9' 0"
July 9	49° 82' 00"	37° 9' 0"	49° 78' 00"	47° 2' 0"	45° 37' 00"	39° 9' 0"
		1° 0'		0° 5'		0° 1'
19	50° 03' 00"	38° 9' 0"	49° 98' 00"	47° 7' 0"	45° 56' 00"	40° 0' 0"
29	50° 25' 00"	39° 8' 0"	50° 20' 00"	48° 3' 0"	45° 79' 00"	40° 0' 0"
Aug. 8	50° 50' 00"	40° 7' 0"	50° 45' 00"	48° 8' 0"	46° 03' 00"	40° 1' 0"
18	50° 76' 00"	41° 5' 0"	50° 71' 00"	49° 2' 0"	46° 30' 00"	40° 2' 0"
		0° 5'		0° 4'		0° 0'
28	51° 03' 00"	42° 0' 0"	50° 99' 00"	49° 6' 0"	46° 59' 00"	40° 2' 0"
Sept. 7	51° 32' 00"	42° 5' 0"	51° 28' 00"	49° 8' 0"	46° 88' 00"	40° 2' 0"
17	51° 60' 00"	42° 7' 0"	51° 57' 00"	49° 9' 0"	47° 19' 00"	40° 1' 0"
27	51° 89' 00"	42° 6' 0"	51° 87' 00"	49° 8' 0"	47° 50' 00"	39° 9' 0"
		0° 2'		0° 2'		0° 3'
Oct. 7	52° 17' 00"	42° 4' 0"	52° 17' 00"	49° 6' 0"	47° 81' 00"	39° 6' 0"
17	52° 45' 00"	41° 9' 0"	52° 46' 00"	49° 2' 0"	48° 12' 00"	39° 3' 0"
27	52° 71' 00"	41° 2' 0"	52° 74' 00"	48° 7' 0"	48° 43' 00"	39° 0' 0"
Nov. 6	52° 97' 00"	40° 4' 0"	53° 01' 00"	48° 1' 0"	48° 72' 00"	38° 6' 0"
		0° 9'		0° 6'		0° 4'
16	53° 20' 00"	39° 5' 0"	53° 26' 00"	47° 5' 0"	48° 99' 00"	38° 2' 0"
26	53° 40' 00"	38° 4' 0"	53° 48' 00"	46° 8' 0"	49° 24' 00"	37° 9' 0"
Dec. 6	53° 58' 00"	37° 3' 0"	53° 67' 00"	46° 1' 0"	49° 45' 00"	37° 6' 0"
16	53° 71' 00"	36° 3' 0"	53° 83' 00"	45° 5' 0"	49° 63' 00"	37° 3' 0"
		1° 1'		0° 11'		0° 1'
26	53° 81' 00"	35° 2' 0"	53° 94' 00"	44° 9' 0"	49° 77' 00"	37° 2' 0"
36	53° 86' 00"	34° 3' 0"	54° 01' 00"	44° 3' 0"	49° 85' 00"	37° 1' 0"

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Argus. (<i>Canopus</i>)		γ Geminorum.		51 (Hev.) Cephei.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 6 ^m 20	[°] 52 ['] 37	^h 6 ^m 29	[°] 16 ['] 30	^h 6 ^m 35	[°] 87 ['] 14
Jan. I	58 ^s .77 ^s 0 ^m .03	29 ^s .6 ^s 3 ^m .5	53 ^s .74 ^s 0 ^m .07	36 ^s .0 ^s 0 ^m .4	75 ^s .01 ^s 0 ^m .33	34 ^s .9 ^s 3 ^m .1
II	58 ^s .74 ^s 0 ^m .11	33 ^s .1 ^s 3 ^m .2	53 ^s .81 ^s 0 ^m .02	35 ^s .6 ^s 0 ^m .4	75 ^s .34 ^s 0 ^m .58	38 ^s .0 ^s 3 ^m .1
21	58 ^s .63 ^s 0 ^m .16	36 ^s .3 ^s 2 ^m .9	53 ^s .83 ^s 0 ^m .02	35 ^s .2 ^s 0 ^m .2	74 ^s .76 ^s 1 ^m .48	41 ^s .1 ^s 3 ^m .0
31	58 ^s .47 ^s 0 ^m .23	39 ^s .2 ^s 2 ^m .5	53 ^s .81 ^s 0 ^m .07	35 ^s .0 ^s 0 ^m .2	73 ^s .28 ^s 2 ^m .29	44 ^s .1 ^s 2 ^m .6
Feb. 10	58 ^s .24 ^s 0 ^m .29	41 ^s .7 ^s 2 ^m .1	53 ^s .74 ^s 0 ^m .12	34 ^s .8 ^s 0 ^m .1	70 ^s .99 ^s 3 ^m .02	46 ^s .7 ^s 2 ^m .3
20	57 ^s .95 ^s 0 ^m .32	43 ^s .8 ^s 1 ^m .6	53 ^s .62 ^s 0 ^m .14	34 ^s .7 ^s 0 ^m .0	67 ^s .97 ^s 3 ^m .60	49 ^s .0 ^s 1 ^m .8
Mar. I	57 ^s .63 ^s 0 ^m .34	45 ^s .4 ^s 1 ^m .0	53 ^s .48 ^s 0 ^m .17	34 ^s .7 ^s 0 ^m .0	64 ^s .37 ^s 4 ^m .03	50 ^s .8 ^s 1 ^m .2
11	57 ^s .29 ^s 0 ^m .36	46 ^s .4 ^s 0 ^m .5	53 ^s .31 ^s 0 ^m .19	34 ^s .7 ^s 0 ^m .0	60 ^s .34 ^s 4 ^m .29	52 ^s .0 ^s 0 ^m .6
21	56 ^s .93 ^s 0 ^m .37	46 ^s .9 ^s 0 ^m .0	53 ^s .12 ^s 0 ^m .18	34 ^s .7 ^s 0 ^m .1	56 ^s .05 ^s 4 ^m .38	52 ^s .6 ^s 0 ^m .1
31	56 ^s .56 ^s 0 ^m .35	46 ^s .9 ^s 0 ^m .4	52 ^s .94 ^s 0 ^m .18	34 ^s .8 ^s 0 ^m .0	51 ^s .67 ^s 4 ^m .27	52 ^s .7 ^s 0 ^m .6
Apr. 10	56 ^s .21 ^s 0 ^m .32	46 ^s .5 ^s 1 ^m .0	52 ^s .76 ^s 0 ^m .16	34 ^s .8 ^s 0 ^m .0	47 ^s .40 ^s 4 ^m .02	52 ^s .1 ^s 1 ^m .2
20	55 ^s .89 ^s 0 ^m .30	45 ^s .5 ^s 1 ^m .5	52 ^s .60 ^s 0 ^m .13	34 ^s .8 ^s 0 ^m .1	43 ^s .38 ^s 3 ^m .61	50 ^s .9 ^s 1 ^m .7
30	55 ^s .59 ^s 0 ^m .25	44 ^s .0 ^s 1 ^m .9	52 ^s .47 ^s 0 ^m .10	34 ^s .9 ^s 0 ^m .0	39 ^s .77 ^s 3 ^m .08	49 ^s .2 ^s 2 ^m .0
May 10	55 ^s .34 ^s 0 ^m .20	42 ^s .1 ^s 2 ^m .3	52 ^s .37 ^s 0 ^m .06	34 ^s .9 ^s 0 ^m .2	36 ^s .69 ^s 2 ^m .44	47 ^s .2 ^s 2 ^m .5
20	55 ^s .14 ^s 0 ^m .15	39 ^s .8 ^s 2 ^m .6	52 ^s .31 ^s 0 ^m .02	35 ^s .1 ^s 0 ^m .1	34 ^s .25 ^s 1 ^m .74	44 ^s .7 ^s 2 ^m .8
30	54 ^s .99 ^s 0 ^m .08	37 ^s .2 ^s 2 ^m .9	52 ^s .29 ^s 0 ^m .02	35 ^s .2 ^s 0 ^m .2	32 ^s .51 ^s 0 ^m .97	41 ^s .9 ^s 3 ^m .0
June 9	54 ^s .91 ^s 0 ^m .03	34 ^s .3 ^s 3 ^m .0	52 ^s .31 ^s 0 ^m .06	35 ^s .4 ^s 0 ^m .2	31 ^s .54 ^s 0 ^m .20	38 ^s .9 ^s 3 ^m .2
19	54 ^s .88 ^s 0 ^m .04	31 ^s .3 ^s 3 ^m .5	52 ^s .37 ^s 0 ^m .11	35 ^s .6 ^s 0 ^m .3	31 ^s .34 ^s 0 ^m .60	35 ^s .7 ^s 3 ^m .2
29	54 ^s .92 ^s 0 ^m .10	27 ^s .8 ^s 3 ^m .3	52 ^s .48 ^s 0 ^m .14	35 ^s .9 ^s 0 ^m .3	31 ^s .24 ^s 1 ^m .42	32 ^s .1 ^s 3 ^m .1
July 9	55 ^s .02 ^s 0 ^m .16	24 ^s .5 ^s 3 ^m .1	52 ^s .62 ^s 0 ^m .18	36 ^s .2 ^s 0 ^m .4	33 ^s .46 ^s 2 ^m .17	29 ^s .1 ^s 3 ^m .0
19	55 ^s .18 ^s 0 ^m .21	21 ^s .4 ^s 2 ^m .9	52 ^s .80 ^s 0 ^m .20	36 ^s .6 ^s 0 ^m .3	35 ^s .63 ^s 2 ^m .83	26 ^s .1 ^s 2 ^m .8
29	55 ^s .39 ^s 0 ^m .26	18 ^s .5 ^s 2 ^m .7	53 ^s .00 ^s 0 ^m .22	36 ^s .9 ^s 0 ^m .3	38 ^s .46 ^s 3 ^m .44	23 ^s .3 ^s 2 ^m .6
Aug. 8	55 ^s .65 ^s 0 ^m .30	15 ^s .8 ^s 2 ^m .3	53 ^s .22 ^s 0 ^m .25	37 ^s .2 ^s 0 ^m .2	41 ^s .90 ^s 3 ^m .97	20 ^s .7 ^s 2 ^m .2
18	55 ^s .95 ^s 0 ^m .34	13 ^s .5 ^s 1 ^m .9	53 ^s .47 ^s 0 ^m .27	37 ^s .4 ^s 0 ^m .1	45 ^s .87 ^s 4 ^m .44	18 ^s .5 ^s 1 ^m .9
28	56 ^s .29 ^s 0 ^m .38	11 ^s .6 ^s 1 ^m .3	53 ^s .74 ^s 0 ^m .28	37 ^s .5 ^s 0 ^m .0	50 ^s .31 ^s 4 ^m .81	16 ^s .6 ^s 1 ^m .5
Sept. 7	56 ^s .67 ^s 0 ^m .39	10 ^s .3 ^s 0 ^m .8	54 ^s .02 ^s 0 ^m .29	37 ^s .5 ^s 0 ^m .1	55 ^s .12 ^s 5 ^m .08	15 ^s .1 ^s 1 ^m .1
17	57 ^s .06 ^s 0 ^m .40	9 ^s .5 ^s 0 ^m .1	54 ^s .31 ^s 0 ^m .29	37 ^s .4 ^s 0 ^m .2	60 ^s .20 ^s 5 ^m .26	14 ^s .0 ^s 0 ^m .6
27	57 ^s .46 ^s 0 ^m .41	9 ^s .4 ^s 0 ^m .5	54 ^s .60 ^s 0 ^m .30	37 ^s .2 ^s 0 ^m .4	65 ^s .46 ^s 5 ^m .33	13 ^s .4 ^s 0 ^m .2
Oct. 7	57 ^s .87 ^s 0 ^m .40	9 ^s .9 ^s 1 ^m .1	54 ^s .90 ^s 0 ^m .31	36 ^s .8 ^s 0 ^m .5	70 ^s .79 ^s 5 ^m .29	13 ^s .2 ^s 0 ^m .3
17	58 ^s .27 ^s 0 ^m .38	11 ^s .0 ^s 1 ^m .8	55 ^s .21 ^s 0 ^m .29	36 ^s .3 ^s 0 ^m .6	76 ^s .08 ^s 5 ^m .12	13 ^s .5 ^s 0 ^m .8
27	58 ^s .65 ^s 0 ^m .35	12 ^s .8 ^s 2 ^m .3	55 ^s .50 ^s 0 ^m .29	35 ^s .7 ^s 0 ^m .7	81 ^s .20 ^s 4 ^m .85	14 ^s .3 ^s 1 ^m .3
Nov. 6	59 ^s .00 ^s 0 ^m .31	15 ^s .1 ^s 2 ^m .8	55 ^s .79 ^s 0 ^m .27	35 ^s .0 ^s 0 ^m .7	86 ^s .05 ^s 4 ^m .44	15 ^s .6 ^s 1 ^m .8
16	59 ^s .31 ^s 0 ^m .26	17 ^s .9 ^s 3 ^m .1	56 ^s .06 ^s 0 ^m .25	34 ^s .3 ^s 0 ^m .7	90 ^s .49 ^s 3 ^m .91	17 ^s .4 ^s 2 ^m .1
26	59 ^s .57 ^s 0 ^m .21	21 ^s .0 ^s 3 ^m .4	56 ^s .31 ^s 0 ^m .22	33 ^s .6 ^s 0 ^m .8	94 ^s .40 ^s 3 ^m .27	19 ^s .5 ^s 2 ^m .5
Dec. 6	59 ^s .78 ^s 0 ^m .15	24 ^s .4 ^s 3 ^m .6	56 ^s .53 ^s 0 ^m .19	32 ^s .8 ^s 0 ^m .6	97 ^s .67 ^s 2 ^m .52	22 ^s .0 ^s 2 ^m .9
16	59 ^s .93 ^s 0 ^m .08	28 ^s .0 ^s 3 ^m .7	56 ^s .72 ^s 0 ^m .14	32 ^s .2 ^s 0 ^m .6	100 ^s .19 ^s 1 ^m .69	24 ^s .9 ^s 3 ^m .1
26	60 ^s .01 ^s 0 ^m .00	31 ^s .7 ^s 3 ^m .5	56 ^s .86 ^s 0 ^m .10	31 ^s .6 ^s 0 ^m .6	101 ^s .88 ^s 0 ^m .80	28 ^s .0 ^s 3 ^m .2
36	60 ^s .01 ^s 0 ^m .00	35 ^s .2 ^s 3 ^m .5	56 ^s .96 ^s 0 ^m .10	31 ^s .0 ^s 0 ^m .6	102 ^s .68 ^s 0 ^m .80	31 ^s .2 ^s 3 ^m .2

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Canis Majoris. (Sirius)		ϵ Canis Majoris.		γ Canis Majoris.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 6	^m 39	^h 6	^m 53	^h 6	^m 57
	[°] 16	['] 31	[°] 28	['] 47	[°] 15	['] 26
Jan. 1	11 ^h 65 ^m 0 ^s	64 [°] 8 ['] 0 ["]	19 ^h 18 ^m 0 ^s	30 [°] 0 ['] 0 ["]	38 ^h 60 ^m 0 ^s	13 [°] 1 ['] 0 ["]
11	11 ^h 71 ^m 0 ^s	67 [°] 2 ['] 4 ["]	19 ^h 24 ^m 0 ^s	32 [°] 9 ['] 2 ["]	38 ^h 08 ^m 0 ^s	15 [°] 5 ['] 2 ["]
21	11 ^h 71 ^m 0 ^s	69 [°] 4 ['] 2 ["]	19 ^h 24 ^m 0 ^s	35 [°] 7 ['] 2 ["]	38 ^h 70 ^m 0 ^s	17 [°] 7 ['] 1 ["]
31	11 ^h 67 ^m 0 ^s	71 [°] 4 ['] 0 ["]	19 ^h 20 ^m 0 ^s	38 [°] 2 ['] 5 ["]	38 ^h 68 ^m 0 ^s	19 [°] 6 ['] 1 ["]
Feb. 10	11 ^h 58 ^m 0 ^s	73 [°] 1 ['] 7 ["]	19 ^h 10 ^m 0 ^s	40 [°] 4 ['] 2 ["]	38 ^h 62 ^m 0 ^s	21 [°] 4 ['] 1 ["]
20	11 ^h 46 ^m 0 ^s	74 [°] 5 ['] 1 ["]	18 ^h 96 ^m 0 ^s	42 [°] 3 ['] 1 ["]	38 ^h 51 ^m 0 ^s	22 [°] 8 ['] 1 ["]
Mar. 1	11 ^h 30 ^m 0 ^s	75 [°] 6 ['] 0 ["]	18 ^h 79 ^m 0 ^s	43 [°] 8 ['] 1 ["]	38 ^h 36 ^m 0 ^s	23 [°] 9 ['] 0 ["]
11	11 ^h 12 ^m 0 ^s	76 [°] 4 ['] 0 ["]	18 ^h 59 ^m 0 ^s	44 [°] 9 ['] 1 ["]	38 ^h 20 ^m 0 ^s	24 [°] 7 ['] 0 ["]
21	10 ^h 93 ^m 0 ^s	76 [°] 8 ['] 0 ["]	18 ^h 37 ^m 0 ^s	45 [°] 6 ['] 0 ["]	38 ^h 01 ^m 0 ^s	25 [°] 2 ['] 0 ["]
31	10 ^h 73 ^m 0 ^s	76 [°] 9 ['] 0 ["]	18 ^h 14 ^m 0 ^s	45 [°] 8 ['] 0 ["]	37 ^h 81 ^m 0 ^s	25 [°] 4 ['] 0 ["]
Apr. 10	10 ^h 53 ^m 0 ^s	76 [°] 7 ['] 0 ["]	17 ^h 93 ^m 0 ^s	45 [°] 7 ['] 0 ["]	37 ^h 62 ^m 0 ^s	25 [°] 3 ['] 0 ["]
20	10 ^h 35 ^m 0 ^s	76 [°] 2 ['] 0 ["]	17 ^h 72 ^m 0 ^s	45 [°] 1 ['] 0 ["]	37 ^h 44 ^m 0 ^s	24 [°] 9 ['] 0 ["]
30	10 ^h 20 ^m 0 ^s	75 [°] 4 ['] 0 ["]	17 ^h 53 ^m 0 ^s	44 [°] 2 ['] 0 ["]	37 ^h 29 ^m 0 ^s	24 [°] 1 ['] 0 ["]
May 10	10 ^h 08 ^m 0 ^s	74 [°] 3 ['] 0 ["]	17 ^h 38 ^m 0 ^s	42 [°] 9 ['] 0 ["]	37 ^h 16 ^m 0 ^s	23 [°] 1 ['] 0 ["]
20	9 ^h 99 ^m 0 ^s	73 [°] 0 ['] 0 ["]	17 ^h 25 ^m 0 ^s	41 [°] 3 ['] 0 ["]	37 ^h 06 ^m 0 ^s	21 [°] 9 ['] 0 ["]
30	9 ^h 93 ^m 0 ^s	71 [°] 4 ['] 0 ["]	17 ^h 17 ^m 0 ^s	39 [°] 4 ['] 0 ["]	37 ^h 00 ^m 0 ^s	20 [°] 4 ['] 0 ["]
June 9	9 ^h 92 ^m 0 ^s	69 [°] 7 ['] 0 ["]	17 ^h 13 ^m 0 ^s	37 [°] 3 ['] 0 ["]	36 ^h 97 ^m 0 ^s	18 [°] 8 ['] 0 ["]
19	9 ^h 95 ^m 0 ^s	67 [°] 8 ['] 0 ["]	17 ^h 13 ^m 0 ^s	34 [°] 9 ['] 0 ["]	36 ^h 98 ^m 0 ^s	17 [°] 0 ['] 0 ["]
29	10 ^h 01 ^m 0 ^s	65 [°] 8 ['] 0 ["]	17 ^h 16 ^m 0 ^s	32 [°] 5 ['] 0 ["]	37 ^h 03 ^m 0 ^s	15 [°] 1 ['] 0 ["]
July 9	10 ^h 13 ^m 0 ^s	63 [°] 6 ['] 0 ["]	17 ^h 25 ^m 0 ^s	29 [°] 8 ['] 0 ["]	37 ^h 13 ^m 0 ^s	12 [°] 9 ['] 0 ["]
19	10 ^h 27 ^m 0 ^s	61 [°] 6 ['] 0 ["]	17 ^h 37 ^m 0 ^s	27 [°] 2 ['] 0 ["]	37 ^h 25 ^m 0 ^s	11 [°] 0 ['] 0 ["]
29	10 ^h 44 ^m 0 ^s	59 [°] 7 ['] 0 ["]	17 ^h 53 ^m 0 ^s	24 [°] 8 ['] 0 ["]	37 ^h 41 ^m 0 ^s	9 [°] 1 ['] 0 ["]
Aug. 8	10 ^h 63 ^m 0 ^s	58 [°] 0 ['] 0 ["]	17 ^h 72 ^m 0 ^s	22 [°] 6 ['] 0 ["]	37 ^h 59 ^m 0 ^s	7 [°] 5 ['] 0 ["]
18	10 ^h 85 ^m 0 ^s	56 [°] 5 ['] 0 ["]	17 ^h 93 ^m 0 ^s	20 [°] 7 ['] 0 ["]	37 ^h 80 ^m 0 ^s	6 [°] 0 ['] 0 ["]
28	11 ^h 10 ^m 0 ^s	55 [°] 3 ['] 0 ["]	18 ^h 18 ^m 0 ^s	19 [°] 1 ['] 0 ["]	38 ^h 03 ^m 0 ^s	4 [°] 7 ['] 0 ["]
Sept. 7	11 ^h 36 ^m 0 ^s	54 [°] 5 ['] 0 ["]	18 ^h 45 ^m 0 ^s	17 [°] 9 ['] 0 ["]	38 ^h 28 ^m 0 ^s	3 [°] 9 ['] 0 ["]
17	11 ^h 63 ^m 0 ^s	54 [°] 1 ['] 0 ["]	18 ^h 73 ^m 0 ^s	17 [°] 1 ['] 0 ["]	38 ^h 55 ^m 0 ^s	3 [°] 4 ['] 0 ["]
27	11 ^h 91 ^m 0 ^s	54 [°] 1 ['] 0 ["]	19 ^h 03 ^m 0 ^s	16 [°] 9 ['] 0 ["]	38 ^h 83 ^m 0 ^s	3 [°] 3 ['] 0 ["]
Oct. 7	12 ^h 20 ^m 0 ^s	54 [°] 5 ['] 0 ["]	19 ^h 34 ^m 0 ^s	17 [°] 2 ['] 0 ["]	39 ^h 11 ^m 0 ^s	3 [°] 7 ['] 0 ["]
17	12 ^h 49 ^m 0 ^s	55 [°] 4 ['] 0 ["]	19 ^h 65 ^m 0 ^s	18 [°] 0 ['] 0 ["]	39 ^h 41 ^m 0 ^s	4 [°] 5 ['] 0 ["]
27	12 ^h 77 ^m 0 ^s	56 [°] 7 ['] 0 ["]	19 ^h 95 ^m 0 ^s	19 [°] 4 ['] 0 ["]	39 ^h 70 ^m 0 ^s	5 [°] 7 ['] 0 ["]
Nov. 6	13 ^h 05 ^m 0 ^s	58 [°] 4 ['] 0 ["]	20 ^h 25 ^m 0 ^s	21 [°] 2 ['] 0 ["]	39 ^h 98 ^m 0 ^s	7 [°] 3 ['] 0 ["]
16	13 ^h 30 ^m 0 ^s	60 [°] 4 ['] 0 ["]	20 ^h 53 ^m 0 ^s	23 [°] 4 ['] 0 ["]	40 ^h 25 ^m 0 ^s	9 [°] 2 ['] 0 ["]
26	13 ^h 54 ^m 0 ^s	62 [°] 6 ['] 0 ["]	20 ^h 78 ^m 0 ^s	26 [°] 0 ['] 0 ["]	40 ^h 50 ^m 0 ^s	11 [°] 4 ['] 0 ["]
Dec. 6	13 ^h 74 ^m 0 ^s	65 [°] 1 ['] 0 ["]	21 ^h 00 ^m 0 ^s	28 [°] 9 ['] 0 ["]	40 ^h 72 ^m 0 ^s	13 [°] 7 ['] 0 ["]
16	13 ^h 91 ^m 0 ^s	67 [°] 6 ['] 0 ["]	21 ^h 18 ^m 0 ^s	31 [°] 9 ['] 0 ["]	40 ^h 90 ^m 0 ^s	16 [°] 2 ['] 0 ["]
26	14 ^h 04 ^m 0 ^s	70 [°] 1 ['] 0 ["]	21 ^h 31 ^m 0 ^s	34 [°] 9 ['] 0 ["]	41 ^h 05 ^m 0 ^s	18 [°] 7 ['] 0 ["]
36	14 ^h 12 ^m 0 ^s	72 [°] 5 ['] 0 ["]	21 ^h 40 ^m 0 ^s	37 [°] 9 ['] 0 ["]	41 ^h 15 ^m 0 ^s	21 [°] 0 ['] 0 ["]

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	δ Geminorum.		α Geminorum. (Castor)		α Canis Minoris. (Procyon)				
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.			
	^h 7	^m 12	[°] 22	['] 13	^h 7	^m 32	[°] 5	['] 33	
Jan. 1	2 ^s 40 ^s	0 ^s 13	36 ^s 3 ^s	0 ^s 2	57 ^s 73 ^s	0 ^s 15	48 ^s 6 ^s	13 ^s 09 ^s	66 ^s 2 ^s
11	2 ^s 53 ^s	0 ^s 06	36 ^s 1 ^s	0 ^s 1	57 ^s 88 ^s	0 ^s 09	49 ^s 0 ^s	13 ^s 21 ^s	64 ^s 9 ^s
21	2 ^s 59 ^s	0 ^s 02	36 ^s 0 ^s	0 ^s 1	57 ^s 97 ^s	0 ^s 03	49 ^s 5 ^s	13 ^s 29 ^s	63 ^s 8 ^s
31	2 ^s 61 ^s	0 ^s 04	36 ^s 1 ^s	0 ^s 2	58 ^s 00 ^s	0 ^s 07	50 ^s 2 ^s	13 ^s 32 ^s	62 ^s 8 ^s
Feb. 10	2 ^s 57 ^s	0 ^s 08	36 ^s 3 ^s	0 ^s 2	57 ^s 97 ^s	0 ^s 08	50 ^s 9 ^s	13 ^s 29 ^s	62 ^s 0 ^s
20	2 ^s 49 ^s	0 ^s 13	36 ^s 5 ^s	0 ^s 3	57 ^s 89 ^s	0 ^s 13	51 ^s 7 ^s	13 ^s 23 ^s	61 ^s 4 ^s
Mar. 1	2 ^s 36 ^s	0 ^s 16	36 ^s 8 ^s	0 ^s 3	57 ^s 76 ^s	0 ^s 16	52 ^s 4 ^s	13 ^s 12 ^s	61 ^s 0 ^s
11	2 ^s 20 ^s	0 ^s 17	37 ^s 1 ^s	0 ^s 2	57 ^s 60 ^s	0 ^s 19	53 ^s 1 ^s	12 ^s 98 ^s	60 ^s 7 ^s
21	2 ^s 03 ^s	0 ^s 19	37 ^s 3 ^s	0 ^s 2	57 ^s 41 ^s	0 ^s 20	53 ^s 6 ^s	12 ^s 82 ^s	60 ^s 6 ^s
31	1 ^s 84 ^s	0 ^s 19	37 ^s 5 ^s	0 ^s 2	57 ^s 21 ^s	0 ^s 21	54 ^s 0 ^s	12 ^s 65 ^s	60 ^s 6 ^s
Apr. 10	1 ^s 65 ^s	0 ^s 17	37 ^s 7 ^s	0 ^s 0	57 ^s 00 ^s	0 ^s 19	54 ^s 3 ^s	12 ^s 47 ^s	60 ^s 7 ^s
20	1 ^s 48 ^s	0 ^s 16	37 ^s 7 ^s	0 ^s 1	56 ^s 81 ^s	0 ^s 18	54 ^s 3 ^s	12 ^s 31 ^s	60 ^s 9 ^s
30	1 ^s 32 ^s	0 ^s 13	37 ^s 8 ^s	0 ^s 0	56 ^s 63 ^s	0 ^s 15	54 ^s 3 ^s	12 ^s 16 ^s	61 ^s 2 ^s
May 10	1 ^s 19 ^s	0 ^s 09	37 ^s 8 ^s	0 ^s 1	56 ^s 48 ^s	0 ^s 11	54 ^s 0 ^s	12 ^s 03 ^s	61 ^s 6 ^s
20	1 ^s 10 ^s	0 ^s 05	37 ^s 7 ^s	0 ^s 1	56 ^s 37 ^s	0 ^s 08	53 ^s 6 ^s	11 ^s 93 ^s	62 ^s 1 ^s
30	1 ^s 05 ^s	0 ^s 02	37 ^s 6 ^s	0 ^s 1	56 ^s 29 ^s	0 ^s 03	53 ^s 1 ^s	11 ^s 86 ^s	62 ^s 7 ^s
June 9	1 ^s 03 ^s	0 ^s 03	37 ^s 5 ^s	0 ^s 1	56 ^s 26 ^s	0 ^s 01	52 ^s 6 ^s	11 ^s 82 ^s	63 ^s 3 ^s
19	1 ^s 06 ^s	0 ^s 06	37 ^s 4 ^s	0 ^s 2	56 ^s 27 ^s	0 ^s 05	51 ^s 9 ^s	11 ^s 82 ^s	64 ^s 0 ^s
29	1 ^s 12 ^s	0 ^s 12	37 ^s 2 ^s	0 ^s 1	56 ^s 32 ^s	0 ^s 10	51 ^s 2 ^s	11 ^s 86 ^s	64 ^s 7 ^s
July 9	1 ^s 24 ^s	0 ^s 14	37 ^s 1 ^s	0 ^s 2	56 ^s 42 ^s	0 ^s 14	50 ^s 4 ^s	11 ^s 93 ^s	65 ^s 5 ^s
19	1 ^s 38 ^s	0 ^s 16	36 ^s 9 ^s	0 ^s 1	56 ^s 56 ^s	0 ^s 17	49 ^s 5 ^s	12 ^s 04 ^s	66 ^s 2 ^s
29	1 ^s 54 ^s	0 ^s 20	36 ^s 8 ^s	0 ^s 3	56 ^s 73 ^s	0 ^s 21	48 ^s 7 ^s	12 ^s 18 ^s	66 ^s 9 ^s
Aug. 8	1 ^s 74 ^s	0 ^s 23	36 ^s 5 ^s	0 ^s 2	56 ^s 94 ^s	0 ^s 24	47 ^s 9 ^s	12 ^s 34 ^s	67 ^s 5 ^s
18	1 ^s 97 ^s	0 ^s 24	36 ^s 3 ^s	0 ^s 4	57 ^s 18 ^s	0 ^s 25	47 ^s 1 ^s	12 ^s 53 ^s	68 ^s 0 ^s
28	2 ^s 21 ^s	0 ^s 27	35 ^s 9 ^s	0 ^s 4	57 ^s 43 ^s	0 ^s 28	46 ^s 2 ^s	12 ^s 74 ^s	68 ^s 3 ^s
Sept. 7	2 ^s 48 ^s	0 ^s 29	35 ^s 5 ^s	0 ^s 5	57 ^s 71 ^s	0 ^s 30	45 ^s 4 ^s	12 ^s 97 ^s	68 ^s 4 ^s
17	2 ^s 77 ^s	0 ^s 30	35 ^s 0 ^s	0 ^s 5	58 ^s 01 ^s	0 ^s 31	44 ^s 5 ^s	13 ^s 22 ^s	68 ^s 3 ^s
27	3 ^s 07 ^s	0 ^s 30	34 ^s 5 ^s	0 ^s 7	58 ^s 32 ^s	0 ^s 34	43 ^s 7 ^s	13 ^s 48 ^s	67 ^s 9 ^s
Oct. 7	3 ^s 37 ^s	0 ^s 32	33 ^s 8 ^s	0 ^s 7	58 ^s 66 ^s	0 ^s 34	42 ^s 8 ^s	13 ^s 76 ^s	67 ^s 3 ^s
17	3 ^s 69 ^s	0 ^s 32	33 ^s 1 ^s	0 ^s 7	59 ^s 00 ^s	0 ^s 35	42 ^s 0 ^s	14 ^s 05 ^s	66 ^s 5 ^s
27	4 ^s 01 ^s	0 ^s 31	32 ^s 4 ^s	0 ^s 8	59 ^s 35 ^s	0 ^s 34	41 ^s 3 ^s	14 ^s 35 ^s	65 ^s 4 ^s
Nov. 6	4 ^s 32 ^s	0 ^s 31	31 ^s 6 ^s	0 ^s 8	59 ^s 69 ^s	0 ^s 34	40 ^s 6 ^s	14 ^s 65 ^s	64 ^s 1 ^s
16	4 ^s 63 ^s	0 ^s 29	30 ^s 8 ^s	0 ^s 7	60 ^s 03 ^s	0 ^s 32	40 ^s 1 ^s	14 ^s 93 ^s	62 ^s 7 ^s
26	4 ^s 92 ^s	0 ^s 26	30 ^s 1 ^s	0 ^s 6	60 ^s 35 ^s	0 ^s 30	39 ^s 7 ^s	15 ^s 21 ^s	61 ^s 2 ^s
Dec. 6	5 ^s 18 ^s	0 ^s 23	29 ^s 5 ^s	0 ^s 6	60 ^s 65 ^s	0 ^s 26	39 ^s 4 ^s	15 ^s 47 ^s	59 ^s 6 ^s
16	5 ^s 41 ^s	0 ^s 19	28 ^s 9 ^s	0 ^s 4	60 ^s 91 ^s	0 ^s 23	39 ^s 4 ^s	15 ^s 70 ^s	58 ^s 1 ^s
26	5 ^s 60 ^s	0 ^s 15	28 ^s 5 ^s	0 ^s 2	61 ^s 14 ^s	0 ^s 17	39 ^s 5 ^s	15 ^s 89 ^s	56 ^s 6 ^s
36	5 ^s 75 ^s	0 ^s 15	28 ^s 3 ^s	0 ^s 2	61 ^s 31 ^s	0 ^s 17	39 ^s 9 ^s	16 ^s 03 ^s	55 ^s 3 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Geminorum. (Pollux)		6 Cancri.		15 Argus.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 7 ^m 37	[°] 28 ['] 20	^h 7 ^m 55	[°] 28 ['] 9	^h 8 ^m 1	[°] 23 ['] 54
Jan. 1	1 ^s 90 ^s 0 ^s 15	54 [°] 0 ['] 0 ["] 1	12 ^s 19 ^s 0 ^s 17	69 [°] 4 ['] 0 ["] 1	47 ^s 39 ^s 0 ^s 14	57 [°] 8 ['] 0 ["] 0
11	2 ^s 05 ^s 0 ^s 10	54 [°] 1 ['] 0 ["] 3	12 ^s 36 ^s 0 ^s 12	69 [°] 5 ['] 0 ["] 2	47 ^s 53 ^s 0 ^s 09	60 [°] 8 ['] 3 ["] 0
21	2 ^s 15 ^s 0 ^s 04	54 [°] 4 ['] 0 ["] 5	12 ^s 48 ^s 0 ^s 06	69 [°] 7 ['] 0 ["] 4	47 ^s 62 ^s 0 ^s 03	63 [°] 6 ['] 2 ["] 8
31	2 ^s 19 ^s 0 ^s 02	54 [°] 9 ['] 0 ["] 5	12 ^s 54 ^s 0 ^s 01	70 [°] 1 ['] 0 ["] 5	47 ^s 65 ^s 0 ^s 02	66 [°] 2 ['] 2 ["] 6
Feb. 10	2 ^s 17 ^s 0 ^s 07	55 [°] 4 ['] 0 ["] 6	12 ^s 55 ^s 0 ^s 05	70 [°] 6 ['] 0 ["] 7	47 ^s 63 ^s 0 ^s 06	68 [°] 6 ['] 2 ["] 0
20	2 ^s 10 ^s 0 ^s 11	56 [°] 0 ['] 0 ["] 6	12 ^s 50 ^s 0 ^s 10	71 [°] 3 ['] 0 ["] 6	47 ^s 57 ^s 0 ^s 11	70 [°] 6 ['] 1 ["] 8
Mar. 1	1 ^s 99 ^s 0 ^s 15	56 [°] 6 ['] 0 ["] 6	12 ^s 40 ^s 0 ^s 14	71 [°] 9 ['] 0 ["] 7	47 ^s 46 ^s 0 ^s 15	72 [°] 4 ['] 1 ["] 5
11	1 ^s 84 ^s 0 ^s 18	57 [°] 2 ['] 0 ["] 5	12 ^s 26 ^s 0 ^s 17	72 [°] 6 ['] 0 ["] 6	47 ^s 31 ^s 0 ^s 17	73 [°] 9 ['] 1 ["] 1
21	1 ^s 66 ^s 0 ^s 19	57 [°] 7 ['] 0 ["] 4	12 ^s 09 ^s 0 ^s 18	73 [°] 2 ['] 0 ["] 5	47 ^s 14 ^s 0 ^s 18	75 [°] 0 ['] 0 ["] 7
31	1 ^s 47 ^s 0 ^s 20	58 [°] 1 ['] 0 ["] 3	11 ^s 91 ^s 0 ^s 19	73 [°] 7 ['] 0 ["] 4	46 ^s 96 ^s 0 ^s 20	75 [°] 7 ['] 0 ["] 3
Apr. 10	1 ^s 27 ^s 0 ^s 18	58 [°] 4 ['] 0 ["] 2	11 ^s 72 ^s 0 ^s 18	74 [°] 1 ['] 0 ["] 3	46 ^s 76 ^s 0 ^s 20	76 [°] 0 ['] 0 ["] 0
20	1 ^s 09 ^s 0 ^s 17	58 [°] 6 ['] 0 ["] 0	11 ^s 54 ^s 0 ^s 18	74 [°] 4 ['] 0 ["] 1	46 ^s 56 ^s 0 ^s 18	76 [°] 0 ['] 0 ["] 4
30	0 ^s 92 ^s 0 ^s 15	58 [°] 6 ['] 0 ["] 1	11 ^s 36 ^s 0 ^s 15	74 [°] 5 ['] 0 ["] 0	46 ^s 38 ^s 0 ^s 16	75 [°] 6 ['] 0 ["] 7
May 10	0 ^s 77 ^s 0 ^s 12	58 [°] 5 ['] 0 ["] 2	11 ^s 21 ^s 0 ^s 12	74 [°] 5 ['] 0 ["] 1	46 ^s 22 ^s 0 ^s 15	74 [°] 9 ['] 1 ["] 0
20	0 ^s 65 ^s 0 ^s 08	58 [°] 3 ['] 0 ["] 3	11 ^s 09 ^s 0 ^s 09	74 [°] 4 ['] 0 ["] 2	46 ^s 07 ^s 0 ^s 11	73 [°] 9 ['] 1 ["] 4
30	0 ^s 57 ^s 0 ^s 04	58 [°] 0 ['] 0 ["] 3	11 ^s 00 ^s 0 ^s 06	74 [°] 2 ['] 0 ["] 4	45 ^s 96 ^s 0 ^s 09	72 [°] 5 ['] 1 ["] 6
June 9	0 ^s 53 ^s 0 ^s 00	57 [°] 7 ['] 0 ["] 5	10 ^s 94 ^s 0 ^s 01	73 [°] 8 ['] 0 ["] 4	45 ^s 87 ^s 0 ^s 05	70 [°] 9 ['] 1 ["] 8
19	0 ^s 53 ^s 0 ^s 04	57 [°] 2 ['] 0 ["] 5	10 ^s 93 ^s 0 ^s 02	73 [°] 4 ['] 0 ["] 5	45 ^s 82 ^s 0 ^s 01	69 [°] 1 ['] 1 ["] 9
29	0 ^s 57 ^s 0 ^s 08	56 [°] 7 ['] 0 ["] 6	10 ^s 95 ^s 0 ^s 06	72 [°] 9 ['] 0 ["] 5	45 ^s 81 ^s 0 ^s 01	67 [°] 2 ['] 2 ["] 0
July 9	0 ^s 65 ^s 0 ^s 13	56 [°] 1 ['] 0 ["] 6	11 ^s 01 ^s 0 ^s 11	72 [°] 4 ['] 0 ["] 6	45 ^s 82 ^s 0 ^s 05	65 [°] 2 ['] 2 ["] 3
19	0 ^s 78 ^s 0 ^s 15	55 [°] 5 ['] 0 ["] 7	11 ^s 12 ^s 0 ^s 13	71 [°] 8 ['] 0 ["] 8	45 ^s 87 ^s 0 ^s 09	62 [°] 9 ['] 2 ["] 2
29	0 ^s 93 ^s 0 ^s 18	54 [°] 8 ['] 0 ["] 6	11 ^s 25 ^s 0 ^s 16	71 [°] 0 ['] 0 ["] 8	45 ^s 96 ^s 0 ^s 13	60 [°] 7 ['] 2 ["] 1
Aug. 8	1 ^s 11 ^s 0 ^s 21	54 [°] 2 ['] 0 ["] 7	11 ^s 41 ^s 0 ^s 20	70 [°] 2 ['] 0 ["] 8	46 ^s 09 ^s 0 ^s 16	58 [°] 6 ['] 1 ["] 9
18	1 ^s 32 ^s 0 ^s 24	53 [°] 5 ['] 0 ["] 8	11 ^s 61 ^s 0 ^s 22	69 [°] 4 ['] 0 ["] 8	46 ^s 25 ^s 0 ^s 18	56 [°] 7 ['] 1 ["] 7
28	1 ^s 56 ^s 0 ^s 26	52 [°] 7 ['] 0 ["] 8	11 ^s 83 ^s 0 ^s 25	68 [°] 6 ['] 0 ["] 9	46 ^s 43 ^s 0 ^s 22	55 [°] 0 ['] 1 ["] 3
Sept. 7	1 ^s 82 ^s 0 ^s 28	51 [°] 9 ['] 0 ["] 8	12 ^s 08 ^s 0 ^s 27	67 [°] 7 ['] 1 ["] 0	46 ^s 65 ^s 0 ^s 24	53 [°] 7 ['] 0 ["] 9
17	2 ^s 10 ^s 0 ^s 30	51 [°] 1 ['] 0 ["] 9	12 ^s 35 ^s 0 ^s 29	66 [°] 7 ['] 1 ["] 0	46 ^s 89 ^s 0 ^s 26	52 [°] 8 ['] 0 ["] 4
27	2 ^s 40 ^s 0 ^s 32	50 [°] 2 ['] 0 ["] 9	12 ^s 64 ^s 0 ^s 31	65 [°] 7 ['] 1 ["] 0	47 ^s 15 ^s 0 ^s 28	52 [°] 4 ['] 0 ["] 0
Oct. 7	2 ^s 72 ^s 0 ^s 33	49 [°] 3 ['] 0 ["] 9	12 ^s 95 ^s 0 ^s 33	64 [°] 7 ['] 1 ["] 1	47 ^s 43 ^s 0 ^s 30	52 [°] 4 ['] 0 ["] 4
17	3 ^s 05 ^s 0 ^s 33	48 [°] 4 ['] 0 ["] 8	13 ^s 28 ^s 0 ^s 33	63 [°] 6 ['] 1 ["] 0	47 ^s 73 ^s 0 ^s 31	52 [°] 8 ['] 1 ["] 0
27	3 ^s 38 ^s 0 ^s 34	47 [°] 6 ['] 0 ["] 9	13 ^s 61 ^s 0 ^s 34	62 [°] 6 ['] 1 ["] 0	48 ^s 04 ^s 0 ^s 31	53 [°] 8 ['] 1 ["] 5
Nov. 6	3 ^s 72 ^s 0 ^s 33	46 [°] 7 ['] 0 ["] 8	13 ^s 95 ^s 0 ^s 34	61 [°] 6 ['] 0 ["] 9	48 ^s 35 ^s 0 ^s 31	55 [°] 3 ['] 1 ["] 8
16	4 ^s 05 ^s 0 ^s 32	45 [°] 9 ['] 0 ["] 6	14 ^s 29 ^s 0 ^s 32	60 [°] 7 ['] 0 ["] 8	48 ^s 66 ^s 0 ^s 30	57 [°] 1 ['] 2 ["] 3
26	4 ^s 37 ^s 0 ^s 29	45 [°] 3 ['] 0 ["] 5	14 ^s 61 ^s 0 ^s 31	59 [°] 9 ['] 0 ["] 7	48 ^s 96 ^s 0 ^s 27	59 [°] 4 ['] 2 ["] 6
Dec. 6	4 ^s 66 ^s 0 ^s 26	44 [°] 8 ['] 0 ["] 3	14 ^s 92 ^s 0 ^s 28	59 [°] 2 ['] 0 ["] 4	49 ^s 23 ^s 0 ^s 24	62 [°] 0 ['] 2 ["] 7
16	4 ^s 92 ^s 0 ^s 2	44 [°] 5 ['] 0 ["] 2	15 ^s 20 ^s 0 ^s 24	58 [°] 8 ['] 0 ["] 3	49 ^s 47 ^s 0 ^s 21	64 [°] 7 ['] 2 ["] 9
26	5 ^s 14 ^s 0 ^s 18	44 [°] 3 ['] 0 ["] 1	15 ^s 44 ^s 0 ^s 20	58 [°] 5 ['] 0 ["] 0	49 ^s 68 ^s 0 ^s 17	67 [°] 6 ['] 2 ["] 2
36	5 ^s 32 ^s 0 ^s 1	44 [°] 4 ['] 0 ["] 0	15 ^s 64 ^s 0 ^s 1	58 [°] 5 ['] 0 ["] 0	49 ^s 85 ^s 0 ^s 1	70 [°] 0 ['] 0 ["] 0

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	η Cancri.			ϵ Hydrae.			ι Ursæ Majoris.		
	R. A.		Dec. North.	R. A.		Dec. North.	R. A.		Dec. North.
	^h 8	^m 24	[°] 20 ['] 53	^h 8	^m 39	[°] 6 ['] 54	^h 8	^m 49	[°] 48 ['] 33
Jan. 1	52° 63'	0° 19'	49° 2'	36° 44'	0° 19'	45° 2'	55° 47'	0° 28'	65° 1'
11	52° 82'	0° 14'	48° 6'	36° 63'	0° 15'	43° 8'	55° 75'	0° 22'	66° 1'
21	52° 96'	0° 09'	48° 3'	36° 78'	0° 09'	42° 5'	55° 97'	0° 14'	67° 3'
31	53° 05'	0° 03'	48° 2'	36° 87'	0° 04'	41° 5'	56° 11'	0° 07'	68° 8'
Feb. 10	53° 08'	0° 02'	48° 3'	36° 91'	0° 00'	40° 7'	56° 18'	0° 00'	70° 5'
20	53° 06'	0° 06'	48° 6'	36° 91'	0° 05'	40° 2'	56° 18'	0° 07'	72° 2'
Mar. 1	53° 00'	0° 10'	48° 9'	36° 86'	0° 09'	39° 8'	56° 11'	0° 13'	74° 0'
11	52° 90'	0° 14'	49° 4'	36° 77'	0° 12'	39° 6'	55° 98'	0° 19'	75° 7'
21	52° 76'	0° 16'	49° 8'	36° 65'	0° 15'	39° 5'	55° 79'	0° 22'	77° 3'
31	52° 60'	0° 17'	50° 3'	36° 50'	0° 15'	39° 6'	55° 57'	0° 24'	78° 6'
Apr. 10	52° 43'	0° 18'	50° 8'	36° 35'	0° 16'	39° 8'	55° 33'	0° 26'	79° 7'
20	52° 25'	0° 16'	51° 2'	36° 19'	0° 15'	40° 1'	55° 07'	0° 25'	80° 5'
30	52° 09'	0° 15'	51° 5'	36° 04'	0° 15'	40° 5'	54° 82'	0° 24'	80° 9'
May 10	51° 94'	0° 13'	51° 8'	35° 89'	0° 12'	40° 9'	54° 58'	0° 22'	81° 0'
20	51° 81'	0° 10'	52° 0'	35° 77'	0° 10'	41° 4'	54° 36'	0° 18'	80° 8'
30	51° 71'	0° 07'	52° 1'	35° 67'	0° 07'	41° 9'	54° 18'	0° 15'	80° 2'
June 9	51° 64'	0° 03'	52° 1'	35° 60'	0° 05'	42° 4'	54° 03'	0° 10'	79° 3'
19	51° 61'	0° 01'	52° 1'	35° 55'	0° 02'	43° 0'	53° 93'	0° 06'	78° 1'
29	51° 60'	0° 03'	52° 0'	35° 53'	0° 01'	43° 6'	53° 87'	0° 02'	76° 7'
July 9	51° 63'	0° 06'	51° 8'	35° 54'	0° 05'	44° 1'	53° 85'	0° 03'	75° 1'
19	51° 69'	0° 11'	51° 6'	35° 50'	0° 07'	44° 7'	53° 88'	0° 08'	73° 3'
29	51° 80'	0° 12'	51° 2'	35° 41'	0° 10'	45° 1'	53° 96'	0° 14'	71° 3'
Aug. 8	51° 92'	0° 16'	50° 8'	35° 77'	0° 12'	45° 6'	54° 10'	0° 17'	69° 1'
18	52° 08'	0° 18'	50° 3'	35° 89'	0° 16'	45° 8'	54° 27'	0° 21'	67° 0'
28	52° 26'	0° 21'	49° 6'	36° 05'	0° 18'	45° 9'	54° 48'	0° 25'	64° 8'
Sept. 7	52° 47'	0° 24'	48° 9'	36° 23'	0° 21'	45° 8'	54° 73'	0° 29'	62° 7'
17	52° 71'	0° 26'	48° 0'	36° 44'	0° 23'	45° 5'	55° 02'	0° 33'	60° 6'
27	52° 97'	0° 27'	47° 1'	36° 67'	0° 26'	44° 9'	55° 35'	0° 36'	58° 6'
Oct. 7	53° 24'	0° 30'	46° 0'	36° 93'	0° 28'	44° 1'	55° 71'	0° 39'	56° 7'
17	53° 54'	0° 32'	44° 8'	37° 21'	0° 29'	43° 1'	56° 10'	0° 41'	54° 9'
27	53° 86'	0° 32'	43° 5'	37° 50'	0° 30'	41° 9'	56° 51'	0° 43'	53° 3'
Nov. 6	54° 18'	0° 32'	42° 2'	37° 80'	0° 31'	40° 5'	56° 94'	0° 44'	52° 0'
16	54° 50'	0° 32'	40° 9'	38° 11'	0° 31'	38° 9'	57° 38'	0° 44'	51° 0'
26	54° 82'	0° 31'	39° 7'	38° 42'	0° 30'	37° 3'	57° 82'	0° 42'	50° 3'
Dec. 6	55° 13'	0° 29'	38° 6'	38° 72'	0° 27'	35° 6'	58° 24'	0° 40'	49° 9'
16	55° 42'	0° 26'	37° 6'	38° 99'	0° 25'	33° 9'	58° 64'	0° 36'	49° 9'
26	55° 68'	0° 21'	36° 7'	39° 24'	0° 21'	32° 3'	59° 00'	0° 30'	50° 4'
36	55° 89'	0° 19'	36° 1'	39° 45'	0° 19'	30° 9'	59° 30'	0° 28'	51° 2'

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	83 Cancr.			ι Argūs.			α Hydræ.		
	R. A.		Dec. North.	R. A.		Dec. South.	R. A.		Dec. South.
	h m	° '		h m	° '		h m	° '	
	9 11	18 16		9 13	58 42		9 20	8 4	
Jan. 1	25 ^s 14 ^s	33 [°] 7 [']	29 [°] 94 [']	15 [°] 8 [']	56 [°] 17 [']	23 [°] 1 [']	25 [°] 37 [']	32 [°] 8 [']	30 [°] 21 [']
11	25 ^s 37 ^s	32 [°] 8 [']	30 [°] 21 [']	19 [°] 5 [']	56 [°] 39 [']	25 [°] 4 [']	27 [°] 6 [']	32 [°] 2 [']	30 [°] 40 [']
21	25 ^s 56 ^s	32 [°] 2 [']	30 [°] 40 [']	23 [°] 2 [']	56 [°] 56 [']	27 [°] 6 [']	29 [°] 5 [']	31 [°] 8 [']	30 [°] 51 [']
31	25 ^s 69 ^s	31 [°] 8 [']	30 [°] 51 [']	27 [°] 0 [']	56 [°] 69 [']	29 [°] 5 [']			
	0 ^h 08 ^m	0 [°] 1 [']	0 [°] 03 [']	3 [°] 8 [']	0 [°] 08 [']	1 [°] 8 [']			
Feb. 10	25 ^s 77 ^s	31 [°] 7 [']	30 [°] 54 [']	30 [°] 8 [']	56 [°] 77 [']	31 [°] 3 [']			
20	25 ^s 80 ^s	31 [°] 7 [']	30 [°] 48 [']	34 [°] 4 [']	56 [°] 80 [']	32 [°] 8 [']			
Mar. 1	25 ^s 78 ^s	32 [°] 0 [']	30 [°] 35 [']	37 [°] 8 [']	56 [°] 78 [']	34 [°] 1 [']			
11	25 ^s 72 ^s	32 [°] 4 [']	30 [°] 15 [']	40 [°] 9 [']	56 [°] 72 [']	35 [°] 1 [']			
	0 ^h 10 ^m	0 [°] 5 [']	0 [°] 25 [']	2 [°] 6 [']	0 [°] 09 [']	0 [°] 8 [']			
21	25 ^s 62 ^s	32 [°] 9 [']	29 [°] 90 [']	43 [°] 5 [']	56 [°] 63 [']	35 [°] 9 [']			
31	25 ^s 49 ^s	33 [°] 5 [']	29 [°] 61 [']	45 [°] 8 [']	56 [°] 51 [']	36 [°] 4 [']			
Apr. 10	25 ^s 34 ^s	34 [°] 0 [']	29 [°] 28 [']	47 [°] 6 [']	56 [°] 37 [']	36 [°] 7 [']			
20	25 ^s 19 ^s	34 [°] 6 [']	28 [°] 93 [']	48 [°] 9 [']	56 [°] 23 [']	36 [°] 7 [']			
	0 ^h 16 ^m	0 [°] 5 [']	0 [°] 36 [']	0 [°] 9 [']	0 [°] 15 [']	0 [°] 1 [']			
30	25 ^s 03 ^s	35 [°] 1 [']	28 [°] 57 [']	49 [°] 8 [']	56 [°] 08 [']	36 [°] 6 [']			
May 10	24 ^s 88 ^s	35 [°] 6 [']	28 [°] 21 [']	50 [°] 1 [']	55 [°] 93 [']	36 [°] 2 [']			
20	24 ^s 75 ^s	36 [°] 0 [']	27 [°] 86 [']	49 [°] 9 [']	55 [°] 80 [']	35 [°] 7 [']			
30	24 ^s 63 ^s	36 [°] 3 [']	27 [°] 53 [']	49 [°] 1 [']	55 [°] 68 [']	35 [°] 0 [']			
	0 ^h 09 ^m	0 [°] 2 [']	0 [°] 30 [']	1 [°] 2 [']	0 [°] 09 [']	0 [°] 9 [']			
June 9	24 ^s 54 ^s	36 [°] 5 [']	27 [°] 23 [']	47 [°] 9 [']	55 [°] 59 [']	34 [°] 1 [']			
19	24 ^s 47 ^s	36 [°] 7 [']	26 [°] 96 [']	46 [°] 3 [']	55 [°] 51 [']	33 [°] 1 [']			
29	24 ^s 43 ^s	36 [°] 7 [']	26 [°] 74 [']	44 [°] 2 [']	55 [°] 45 [']	32 [°] 0 [']			
July 9	24 ^s 41 ^s	36 [°] 7 [']	26 [°] 56 [']	41 [°] 8 [']	55 [°] 43 [']	30 [°] 9 [']			
	0 ^h 02 ^m	0 [°] 1 [']	0 [°] 12 [']	2 [°] 7 [']	0 [°] 00 [']	1 [°] 2 [']			
19	24 ^s 43 ^s	36 [°] 6 [']	26 [°] 44 [']	39 [°] 1 [']	55 [°] 43 [']	29 [°] 7 [']			
29	24 ^s 48 ^s	36 [°] 3 [']	26 [°] 38 [']	36 [°] 2 [']	55 [°] 45 [']	28 [°] 5 [']			
Aug. 8	24 ^s 56 ^s	35 [°] 9 [']	26 [°] 38 [']	32 [°] 9 [']	55 [°] 50 [']	27 [°] 3 [']			
18	24 ^s 66 ^s	35 [°] 4 [']	26 [°] 44 [']	29 [°] 9 [']	55 [°] 59 [']	26 [°] 2 [']			
	0 ^h 14 ^m	0 [°] 6 [']	0 [°] 14 [']	2 [°] 8 [']	0 [°] 11 [']	0 [°] 9 [']			
28	24 ^s 80 ^s	34 [°] 8 [']	26 [°] 58 [']	27 [°] 1 [']	55 [°] 70 [']	25 [°] 3 [']			
Sept. 7	24 ^s 96 ^s	34 [°] 0 [']	26 [°] 79 [']	24 [°] 4 [']	55 [°] 84 [']	24 [°] 7 [']			
17	25 ^s 15 ^s	33 [°] 1 [']	27 [°] 06 [']	22 [°] 1 [']	56 [°] 01 [']	24 [°] 4 [']			
27	25 ^s 37 ^s	32 [°] 0 [']	27 [°] 39 [']	20 [°] 2 [']	56 [°] 21 [']	24 [°] 3 [']			
	0 ^h 25 ^m	1 [°] 3 [']	0 [°] 39 [']	1 [°] 4 [']	0 [°] 23 [']	0 [°] 2 [']			
Oct. 7	25 ^s 62 ^s	30 [°] 7 [']	27 [°] 78 [']	18 [°] 8 [']	56 [°] 44 [']	24 [°] 5 [']			
17	25 ^s 89 ^s	29 [°] 3 [']	28 [°] 21 [']	17 [°] 9 [']	56 [°] 70 [']	25 [°] 2 [']			
27	26 ^s 19 ^s	27 [°] 8 [']	28 [°] 68 [']	17 [°] 7 [']	56 [°] 98 [']	26 [°] 2 [']			
Nov. 6	26 ^s 50 ^s	26 [°] 3 [']	29 [°] 17 [']	18 [°] 1 [']	57 [°] 27 [']	27 [°] 5 [']			
	0 ^h 32 ^m	1 [°] 6 [']	0 [°] 50 [']	1 [°] 1 [']	0 [°] 31 [']	1 [°] 6 [']			
16	26 ^s 82 ^s	24 [°] 7 [']	29 [°] 67 [']	19 [°] 2 [']	57 [°] 58 [']	29 [°] 1 [']			
26	27 ^s 15 ^s	23 [°] 1 [']	30 [°] 16 [']	20 [°] 9 [']	57 [°] 89 [']	31 [°] 0 [']			
Dec. 6	27 ^s 48 ^s	21 [°] 6 [']	30 [°] 63 [']	23 [°] 2 [']	58 [°] 20 [']	33 [°] 1 [']			
16	27 ^s 78 ^s	20 [°] 2 [']	31 [°] 06 [']	26 [°] 0 [']	58 [°] 50 [']	35 [°] 3 [']			
	0 ^h 28 ^m	1 [°] 3 [']	0 [°] 37 [']	3 [°] 2 [']	0 [°] 27 [']	2 [°] 3 [']			
26	28 ^s 06 ^s	18 [°] 9 [']	31 [°] 43 [']	29 [°] 2 [']	58 [°] 77 [']	37 [°] 6 [']			
36	28 ^s 31 ^s	17 [°] 8 [']	31 [°] 74 [']	32 [°] 7 [']	59 [°] 00 [']	39 [°] 8 [']			

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	θ Ursæ Majoris.		ϵ Leonis.		π Leonis.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 9 ^m 23	[°] 52 ['] 17	^h 9 ^m 38	[°] 24 ['] 23	^h 9 ^m 53	[°] 8 ['] 41
Jan. 1	47° 04' 0" 0	22° 0' 0" 0	9° 51' 0" 0	39° 8' 0" 0	3° 27' 0" 0	30° 7' 0" 0
11	47° 38' 0" 34	22° 9' 0" 9	9° 77' 0" 26	39° 1' 0" 7	3° 53' 0" 26	29° 2' 1" 5
21	47° 65' 0" 27	22° 4' 1" 2	9° 99' 0" 22	38° 8' 0" 3	3° 74' 0" 21	27° 8' 1" 4
31	47° 85' 0" 20	25° 6' 1" 5	10° 15' 0" 16	38° 7' 0" 1	3° 91' 0" 17	26° 8' 1" 0
	0° 12	1° 8	0° 12	0° 2	0° 11	0° 8
Feb. 10	47° 97' 0" 04	27° 4' 2" 0	10° 27' 0" 06	38° 9' 0" 4	4° 02' 0" 07	26° 0' 0" 6
20	48° 01' 0" 03	29° 4' 2" 1	10° 33' 0" 00	39° 3' 0" 6	4° 09' 0" 02	25° 4' 0" 3
Mar. 1	47° 98' 0" 10	31° 5' 2" 0	10° 33' 0" 04	39° 9' 0" 8	4° 11' 0" 02	25° 1' 0" 2
11	47° 88' 0" 16	33° 5' 1" 9	10° 29' 0" 08	40° 7' 0" 9	4° 09' 0" 06	24° 9' 0" 1
21	47° 72' 0" 21	35° 4' 1" 7	10° 21' 0" 12	41° 6' 0" 9	4° 03' 0" 10	25° 0' 0" 3
31	47° 51' 0" 24	37° 1' 1" 5	10° 09' 0" 14	42° 5' 0" 8	3° 93' 0" 11	25° 3' 0" 3
Apr. 10	47° 27' 0" 27	38° 6' 1" 1	9° 95' 0" 15	43° 3' 0" 8	3° 82' 0" 13	25° 6' 0" 4
20	47° 00' 0" 28	39° 7' 0" 7	9° 80' 0" 16	44° 1' 0" 7	3° 69' 0" 14	26° 0' 0" 5
30	46° 72' 0" 27	40° 4' 0" 4	9° 64' 0" 15	44° 8' 0" 6	3° 55' 0" 13	26° 5' 0" 6
May 10	46° 45' 0" 25	40° 8' 0" 0	9° 49' 0" 15	45° 4' 0" 5	3° 42' 0" 13	27° 1' 0" 5
20	46° 20' 0" 23	40° 8' 0" 3	9° 34' 0" 13	45° 9' 0" 3	3° 29' 0" 12	27° 6' 0" 6
30	45° 97' 0" 20	40° 5' 0" 8	9° 21' 0" 11	46° 2' 0" 2	3° 17' 0" 11	28° 2' 0" 5
June 9	45° 77' 0" 16	39° 7' 1" 1	9° 10' 0" 09	46° 4' 0" 0	3° 06' 0" 08	28° 7' 0" 5
19	45° 61' 0" 11	38° 6' 1" 4	9° 01' 0" 06	46° 4' 0" 2	2° 98' 0" 07	29° 2' 0" 5
29	45° 50' 0" 07	37° 2' 1" 7	8° 95' 0" 04	46° 2' 0" 3	2° 91' 0" 04	29° 7' 0" 4
July 9	45° 43' 0" 03	35° 5' 1" 9	8° 91' 0" 01	45° 9' 0" 5	2° 87' 0" 02	30° 1' 0" 3
19	45° 40' 0" 03	33° 6' 2" 1	8° 90' 0" 02	45° 4' 0" 6	2° 85' 0" 00	30° 4' 0" 3
29	45° 43' 0" 07	31° 5' 2" 3	8° 92' 0" 05	44° 8' 0" 7	2° 85' 0" 04	30° 7' 0" 1
Aug. 8	45° 50' 0" 13	29° 2' 2" 7	8° 97' 0" 08	44° 1' 1" 0	2° 89' 0" 05	30° 8' 0" 0
18	45° 63' 0" 17	26° 5' 2" 5	9° 05' 0" 12	43° 1' 1" 1	{1° 51' 0" 08}	{25° 1' 0" 1}
28	45° 80' 0" 21	24° 0' 2" 4	9° 17' 0" 14	42° 0' 1" 2	3° 03' 0" 12	30° 7' 0" 4
Sept. 7	46° 01' 0" 26	21° 6' 2" 5	9° 31' 0" 17	40° 8' 1" 3	3° 15' 0" 15	30° 3' 0" 5
17	46° 27' 0" 30	19° 1' 2" 5	9° 48' 0" 21	39° 5' 1" 5	3° 30' 0" 17	29° 8' 0" 8
27	46° 57' 0" 35	16° 6' 2" 3	9° 69' 0" 23	38° 0' 1" 6	3° 47' 0" 21	29° 0' 1" 0
Oct. 7	46° 92' 0" 38	14° 3' 2" 2	9° 92' 0" 26	36° 4' 1" 7	3° 68' 0" 24	28° 0' 1" 2
17	47° 30' 0" 42	12° 1' 2" 0	10° 18' 0" 29	34° 7' 1" 7	3° 92' 0" 27	26° 8' 1" 5
27	47° 72' 0" 45	10° 1' 1" 7	10° 47' 0" 32	33° 0' 1" 8	4° 19' 0" 29	25° 3' 1" 6
Nov. 6	48° 17' 0" 46	8° 4' 1" 4	10° 79' 0" 34	31° 2' 1" 7	4° 48' 0" 31	23° 7' 1" 7
16	48° 63' 0" 47	7° 0' 1" 0	11° 13' 0" 34	29° 5' 1" 7	4° 79' 0" 31	22° 0' 1" 9
26	49° 10' 0" 46	6° 0' 0" 6	11° 47' 0" 34	27° 8' 1" 5	5° 10' 0" 32	20° 1' 1" 9
Dec. 6	49° 56' 0" 44	5° 4' 0" 2	11° 81' 0" 33	26° 3' 1" 3	5° 42' 0" 31	18° 2' 1" 8
16	50° 00' 0" 41	5° 2' 0" 2	12° 14' 0" 31	25° 0' 1" 1	5° 73' 0" 30	16° 4' 1" 7
26	50° 41' 0" 38	5° 4' 0" 6	12° 45' 0" 28	23° 9' 0" 8	6° 03' 0" 27	14° 7' 1" 7
36	50° 79' 0" 38	6° 0' 0" 6	12° 73' 0" 28	23° 1' 0" 8	6° 30' 0" 27	13° 0' 1" 7

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Leonis. (Regulus)			γ Leonis.			ρ Leonis.		
	R. A.		Dec. North.	R. A.		Dec. North.	R. A.		Dec. North.
	h	m	°	h	m	°	h	m	°
	10	1	12 37	10	12	20 31	10	25	9 59
Jan. 1	9 ^s 34 ^s	0 ^s 26 ^s	36 ^s 8 ^s	29 ^s 95 ^s	0 ^s 28 ^s	26 ^s 1 ^s	40 ^s 54 ^s	66 ^s 9 ^s	
11	9 ^s 60 ^s	0 ^s 22 ^s	35 ^s 5 ^s	30 ^s 23 ^s	0 ^s 24 ^s	25 ^s 1 ^s	40 ^s 82 ^s	65 ^s 3 ^s	1 ^s 6 ^s
21	9 ^s 82 ^s	0 ^s 18 ^s	34 ^s 3 ^s	30 ^s 47 ^s	0 ^s 20 ^s	24 ^s 3 ^s	41 ^s 06 ^s	63 ^s 9 ^s	1 ^s 4 ^s
31	10 ^s 00 ^s	0 ^s 13 ^s	33 ^s 5 ^s	30 ^s 67 ^s	0 ^s 15 ^s	23 ^s 9 ^s	41 ^s 25 ^s	62 ^s 9 ^s	1 ^s 0 ^s
Feb. 10	10 ^s 13 ^s	0 ^s 08 ^s	32 ^s 9 ^s	30 ^s 82 ^s	0 ^s 09 ^s	23 ^s 7 ^s	41 ^s 40 ^s	62 ^s 1 ^s	0 ^s 8 ^s
20	10 ^s 21 ^s	0 ^s 03 ^s	32 ^s 5 ^s	30 ^s 91 ^s	0 ^s 04 ^s	23 ^s 9 ^s	41 ^s 51 ^s	61 ^s 5 ^s	0 ^s 6 ^s
Mar. 1	10 ^s 24 ^s	0 ^s 02 ^s	32 ^s 4 ^s	30 ^s 95 ^s	0 ^s 01 ^s	24 ^s 3 ^s	41 ^s 56 ^s	61 ^s 3 ^s	0 ^s 2 ^s
11	10 ^s 22 ^s	0 ^s 06 ^s	32 ^s 6 ^s	30 ^s 94 ^s	0 ^s 04 ^s	24 ^s 8 ^s	41 ^s 57 ^s	61 ^s 2 ^s	0 ^s 1 ^s
21	10 ^s 16 ^s	0 ^s 09 ^s	32 ^s 9 ^s	30 ^s 90 ^s	0 ^s 08 ^s	25 ^s 6 ^s	41 ^s 54 ^s	61 ^s 4 ^s	0 ^s 3 ^s
31	10 ^s 07 ^s	0 ^s 11 ^s	33 ^s 3 ^s	30 ^s 82 ^s	0 ^s 11 ^s	26 ^s 4 ^s	41 ^s 47 ^s	61 ^s 7 ^s	0 ^s 5 ^s
Apr. 10	9 ^s 96 ^s	0 ^s 12 ^s	33 ^s 8 ^s	30 ^s 71 ^s	0 ^s 13 ^s	27 ^s 3 ^s	41 ^s 38 ^s	62 ^s 2 ^s	0 ^s 5 ^s
20	9 ^s 84 ^s	0 ^s 14 ^s	34 ^s 4 ^s	30 ^s 58 ^s	0 ^s 14 ^s	28 ^s 1 ^s	41 ^s 27 ^s	62 ^s 7 ^s	0 ^s 6 ^s
30	9 ^s 70 ^s	0 ^s 14 ^s	35 ^s 0 ^s	30 ^s 44 ^s	0 ^s 14 ^s	28 ^s 9 ^s	41 ^s 15 ^s	63 ^s 3 ^s	0 ^s 6 ^s
May 10	9 ^s 56 ^s	0 ^s 13 ^s	35 ^s 6 ^s	30 ^s 30 ^s	0 ^s 14 ^s	29 ^s 7 ^s	41 ^s 02 ^s	63 ^s 9 ^s	0 ^s 7 ^s
20	9 ^s 43 ^s	0 ^s 12 ^s	36 ^s 2 ^s	30 ^s 16 ^s	0 ^s 13 ^s	30 ^s 3 ^s	40 ^s 89 ^s	64 ^s 6 ^s	0 ^s 6 ^s
30	9 ^s 31 ^s	0 ^s 11 ^s	36 ^s 7 ^s	30 ^s 03 ^s	0 ^s 11 ^s	30 ^s 8 ^s	40 ^s 77 ^s	65 ^s 2 ^s	0 ^s 5 ^s
June 9	9 ^s 20 ^s	0 ^s 09 ^s	37 ^s 2 ^s	29 ^s 92 ^s	0 ^s 10 ^s	31 ^s 2 ^s	40 ^s 66 ^s	65 ^s 7 ^s	0 ^s 5 ^s
19	9 ^s 11 ^s	0 ^s 07 ^s	37 ^s 6 ^s	29 ^s 82 ^s	0 ^s 09 ^s	31 ^s 4 ^s	40 ^s 56 ^s	66 ^s 2 ^s	0 ^s 5 ^s
29	9 ^s 04 ^s	0 ^s 05 ^s	37 ^s 9 ^s	29 ^s 73 ^s	0 ^s 06 ^s	31 ^s 5 ^s	40 ^s 48 ^s	66 ^s 7 ^s	0 ^s 3 ^s
July 9	8 ^s 99 ^s	0 ^s 03 ^s	38 ^s 2 ^s	29 ^s 67 ^s	0 ^s 03 ^s	31 ^s 5 ^s	40 ^s 42 ^s	67 ^s 0 ^s	0 ^s 3 ^s
19	8 ^s 96 ^s	0 ^s 00 ^s	38 ^s 4 ^s	29 ^s 64 ^s	0 ^s 01 ^s	31 ^s 2 ^s	40 ^s 37 ^s	67 ^s 3 ^s	0 ^s 2 ^s
29	8 ^s 96 ^s	0 ^s 02 ^s	38 ^s 4 ^s	29 ^s 63 ^s	0 ^s 01 ^s	30 ^s 9 ^s	40 ^s 35 ^s	67 ^s 5 ^s	0 ^s 0 ^s
Aug. 8	8 ^s 98 ^s	0 ^s 05 ^s	38 ^s 3 ^s	29 ^s 64 ^s	0 ^s 04 ^s	30 ^s 3 ^s	40 ^s 35 ^s	67 ^s 5 ^s	0 ^s 1 ^s
18	9 ^s 03 ^s	0 ^s 09 ^s	38 ^s 1 ^s	29 ^s 68 ^s	0 ^s 08 ^s	29 ^s 6 ^s	40 ^s 38 ^s	67 ^s 4 ^s	0 ^s 3 ^s
28	9 ^s 12 ^s	0 ^s 11 ^s	37 ^s 7 ^s	29 ^s 76 ^s	0 ^s 10 ^s	28 ^s 6 ^s	40 ^s 43 ^s	67 ^s 1 ^s	0 ^s 4 ^s
Sept. 7	9 ^s 23 ^s	0 ^s 14 ^s	37 ^s 1 ^s	29 ^s 86 ^s	0 ^s 13 ^s	27 ^s 5 ^s	40 ^s 51 ^s	66 ^s 7 ^s	0 ^s 7 ^s
17	9 ^s 37 ^s	0 ^s 17 ^s	36 ^s 3 ^s	29 ^s 99 ^s	0 ^s 17 ^s	26 ^s 3 ^s	40 ^s 63 ^s	66 ^s 0 ^s	0 ^s 9 ^s
27	9 ^s 54 ^s	0 ^s 20 ^s	35 ^s 3 ^s	30 ^s 16 ^s	0 ^s 20 ^s	24 ^s 9 ^s	40 ^s 78 ^s	65 ^s 1 ^s	1 ^s 1 ^s
Oct. 7	9 ^s 74 ^s	0 ^s 24 ^s	34 ^s 1 ^s	30 ^s 36 ^s	0 ^s 24 ^s	23 ^s 3 ^s	40 ^s 96 ^s	64 ^s 0 ^s	1 ^s 4 ^s
17	9 ^s 98 ^s	0 ^s 26 ^s	32 ^s 7 ^s	30 ^s 60 ^s	0 ^s 26 ^s	21 ^s 6 ^s	41 ^s 18 ^s	62 ^s 6 ^s	1 ^s 5 ^s
27	10 ^s 24 ^s	0 ^s 29 ^s	31 ^s 1 ^s	30 ^s 86 ^s	0 ^s 30 ^s	19 ^s 7 ^s	41 ^s 42 ^s	61 ^s 1 ^s	1 ^s 7 ^s
Nov. 6	10 ^s 53 ^s	0 ^s 31 ^s	29 ^s 4 ^s	31 ^s 16 ^s	0 ^s 31 ^s	17 ^s 8 ^s	41 ^s 70 ^s	59 ^s 4 ^s	1 ^s 9 ^s
16	10 ^s 84 ^s	0 ^s 32 ^s	27 ^s 6 ^s	31 ^s 47 ^s	0 ^s 33 ^s	15 ^s 9 ^s	42 ^s 00 ^s	57 ^s 5 ^s	1 ^s 9 ^s
26	11 ^s 16 ^s	0 ^s 32 ^s	25 ^s 8 ^s	31 ^s 80 ^s	0 ^s 34 ^s	14 ^s 0 ^s	42 ^s 32 ^s	55 ^s 6 ^s	1 ^s 9 ^s
Dec. 6	11 ^s 48 ^s	0 ^s 32 ^s	23 ^s 9 ^s	32 ^s 14 ^s	0 ^s 34 ^s	12 ^s 2 ^s	42 ^s 64 ^s	53 ^s 7 ^s	2 ^s 0 ^s
16	11 ^s 80 ^s	0 ^s 31 ^s	22 ^s 1 ^s	32 ^s 48 ^s	0 ^s 32 ^s	10 ^s 5 ^s	42 ^s 96 ^s	51 ^s 7 ^s	1 ^s 8 ^s
26	12 ^s 11 ^s	0 ^s 27 ^s	20 ^s 5 ^s	32 ^s 80 ^s	0 ^s 29 ^s	9 ^s 1 ^s	43 ^s 27 ^s	49 ^s 9 ^s	1 ^s 6 ^s
36	12 ^s 38 ^s	0 ^s 27 ^s	19 ^s 0 ^s	33 ^s 09 ^s	0 ^s 29 ^s	8 ^s 0 ^s	43 ^s 56 ^s	48 ^s 3 ^s	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	η Argus.		ι Leonis.		α Ursæ Majoris.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 10 ^m 39	[°] 58 ['] 58	^h 10 ^m 42	[°] 11 ['] 15	^h 10 ^m 55	[°] 62 ['] 28
Jan. 1	50° 12' 0.42	3° 5' 3.1	7° 90' 0.29	38° 0' 1.6	20° 30' 0.53	39° 0' 0.3
11	50° 54' 0.35	6° 6' 3.4	8° 19' 0.25	36° 4' 1.3	20° 83' 0.48	39° 3' 0.9
21	50° 89' 0.28	10° 0' 3.6	8° 44' 0.21	35° 1' 1.1	21° 31' 0.40	40° 2' 1.5
31	51° 17' 0.20	13° 6' 3.7	8° 65' 0.17	34° 0' 0.7	21° 71' 0.32	41° 7' 1.9
Feb. 10	51° 37' 0.13	17° 3' 3.7	8° 82' 0.12	33° 3' 0.5	22° 03' 0.22	43° 6' 2.3
20	51° 50' 0.05	21° 0' 3.7	8° 94' 0.07	32° 8' 0.2	22° 25' 0.13	45° 9' 2.5
Mar. 1	51° 55' 0.02	24° 7' 3.5	9° 01' 0.03	32° 6' 0.0	22° 38' 0.03	48° 4' 2.6
11	51° 53' 0.09	28° 2' 3.2	9° 04' 0.02	32° 6' 0.3	22° 41' 0.06	51° 0' 2.7
21	51° 44' 0.15	31° 4' 3.0	9° 02' 0.05	32° 9' 0.4	22° 35' 0.14	53° 7' 2.6
31	51° 29' 0.20	34° 4' 2.6	8° 97' 0.08	33° 3' 0.5	22° 21' 0.21	56° 3' 2.4
Apr. 10	51° 09' 0.24	37° 0' 2.3	8° 89' 0.10	33° 8' 0.7	22° 00' 0.27	58° 7' 2.2
20	50° 85' 0.28	39° 3' 1.8	8° 79' 0.12	34° 5' 0.6	21° 73' 0.32	60° 9' 1.8
30	50° 57' 0.29	41° 1' 1.3	8° 67' 0.12	35° 1' 0.7	21° 41' 0.34	62° 7' 1.3
May 10	50° 28' 0.31	42° 4' 0.8	8° 55' 0.12	35° 8' 0.7	21° 07' 0.36	64° 0' 0.9
20	49° 97' 0.32	43° 2' 0.4	8° 43' 0.12	36° 5' 0.6	20° 71' 0.36	64° 9' 0.5
30	49° 65' 0.31	43° 6' 0.2	8° 31' 0.11	37° 1' 0.6	20° 35' 0.35	65° 4' 0.0
June 9	49° 34' 0.31	43° 4' 0.6	8° 20' 0.11	37° 7' 0.5	20° 00' 0.33	65° 4' 0.5
19	49° 03' 0.28	42° 8' 1.1	8° 09' 0.09	38° 2' 0.5	19° 67' 0.30	64° 9' 1.0
29	48° 75' 0.26	41° 7' 1.6	8° 00' 0.07	38° 7' 0.4	19° 37' 0.27	63° 9' 1.4
July 9	48° 49' 0.23	40° 1' 2.0	7° 93' 0.05	39° 1' 0.2	19° 10' 0.22	62° 5' 1.8
19	48° 26' 0.19	38° 1' 2.3	7° 88' 0.04	39° 3' 0.1	18° 88' 0.17	60° 7' 2.2
29	48° 07' 0.14	35° 8' 2.6	7° 84' 0.02	39° 4' 0.1	18° 71' 0.12	58° 5' 2.5
Aug. 8	47° 93' 0.08	33° 2' 2.8	7° 82' 0.01	39° 3' 0.1	18° 59' 0.07	56° 0' 2.8
18	47° 85' 0.02	30° 4' 2.9	7° 83' 0.04	39° 2' 0.4	18° 52' 0.00	53° 2' 3.0
28	47° 83' 0.07	27° 5' 3.0	7° 87' 0.07	38° 8' 0.6	18° 52' 0.07	50° 2' 3.5
Sept. 7	47° 90' 0.13	24° 5' 2.7	7° 94' 0.10	38° 2' 0.8	18° 59' 0.13	46° 7' 3.2
17	48° 03' 0.20	21° 8' 2.5	8° 04' 0.13	37° 4' 1.0	18° 72' 0.20	43° 5' 3.3
27	48° 23' 0.28	19° 3' 2.1	8° 17' 0.17	36° 4' 1.2	18° 92' 0.27	40° 2' 3.3
Oct. 7	48° 51' 0.34	17° 2' 1.6	8° 34' 0.20	35° 2' 1.4	19° 19' 0.33	36° 9' 3.2
17	48° 85' 0.40	15° 6' 1.2	8° 54' 0.24	33° 8' 1.6	19° 52' 0.40	33° 7' 3.0
27	49° 25' 0.46	14° 4' 0.6	8° 78' 0.26	32° 2' 1.8	19° 92' 0.46	30° 7' 2.7
Nov. 6	49° 71' 0.50	13° 8' 0.1	9° 04' 0.30	30° 4' 1.9	20° 38' 0.52	28° 0' 2.4
16	50° 21' 0.52	13° 9' 0.6	9° 34' 0.31	28° 5' 2.0	20° 90' 0.55	25° 6' 2.0
26	50° 73' 0.52	14° 5' 1.3	9° 65' 0.33	26° 5' 2.0	21° 45' 0.58	23° 6' 1.6
Dec. 6	51° 25' 0.51	15° 8' 1.9	9° 98' 0.33	24° 5' 2.0	22° 03' 0.59	22° 0' 1.0
16	51° 76' 0.48	17° 7' 2.4	10° 31' 0.31	22° 5' 1.8	22° 62' 0.58	21° 0' 0.5
26	52° 24' 0.44	20° 1' 2.9	10° 62' 0.30	20° 7' 1.7	23° 20' 0.55	20° 5' 0.1
36	52° 68' 0.44	23° 0' 2.9	10° 92' 0.30	19° 0' 1.7	23° 75' 0.55	20° 6' 0.1

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	χ Leonis.			δ Leonis.			δ Hydræ et Crateris.					
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. South.				
	^h 10	^m 58	[°] 8	['] 3	^h 11	^m 6	[°] 21	['] 15	^h 11	^m 12	[°] 14	['] 2
Jan. I	1 ^h 48 ^m	0 [°] 30 [']	62 [°] 0 [']	53 [°] 69 [']	50 [°] 1 [']	34 [°] 05 [']	39 [°] 4 [']					
II	1 ^h 78 ^m	0 [°] 26 [']	60 [°] 3 [']	54 [°] 00 [']	48 [°] 8 [']	34 [°] 35 [']	41 [°] 8 [']					
2I	2 ^h 04 ^m	0 [°] 22 [']	58 [°] 7 [']	54 [°] 28 [']	47 [°] 8 [']	34 [°] 62 [']	44 [°] 2 [']					
3I	2 ^h 26 ^m	0 [°] 18 [']	57 [°] 5 [']	54 [°] 52 [']	47 [°] 2 [']	34 [°] 84 [']	46 [°] 4 [']					
Feb. 10	2 ^h 44 ^m	0 [°] 13 [']	56 [°] 5 [']	54 [°] 72 [']	46 [°] 9 [']	35 [°] 03 [']	48 [°] 6 [']					
20	2 ^h 57 ^m	0 [°] 08 [']	55 [°] 8 [']	54 [°] 87 [']	47 [°] 0 [']	35 [°] 18 [']	50 [°] 5 [']					
Mar. I	2 ^h 65 ^m	0 [°] 04 [']	55 [°] 4 [']	54 [°] 97 [']	47 [°] 4 [']	35 [°] 28 [']	52 [°] 3 [']					
II	2 ^h 69 ^m	0 [°] 00 [']	55 [°] 2 [']	55 [°] 02 [']	48 [°] 0 [']	35 [°] 33 [']	53 [°] 8 [']					
2I	2 ^h 69 ^m	0 [°] 03 [']	55 [°] 3 [']	55 [°] 03 [']	48 [°] 9 [']	35 [°] 34 [']	55 [°] 1 [']					
3I	2 ^h 66 ^m	0 [°] 06 [']	55 [°] 5 [']	55 [°] 00 [']	49 [°] 8 [']	35 [°] 32 [']	56 [°] 1 [']					
Apr. 10	2 ^h 60 ^m	0 [°] 09 [']	55 [°] 9 [']	54 [°] 93 [']	50 [°] 9 [']	35 [°] 27 [']	56 [°] 8 [']					
20	2 ^h 51 ^m	0 [°] 11 [']	56 [°] 4 [']	54 [°] 84 [']	52 [°] 0 [']	35 [°] 20 [']	57 [°] 3 [']					
30	2 ^h 40 ^m	0 [°] 11 [']	57 [°] 0 [']	54 [°] 73 [']	53 [°] 1 [']	35 [°] 10 [']	57 [°] 6 [']					
May 10	2 ^h 29 ^m	0 [°] 12 [']	57 [°] 7 [']	54 [°] 61 [']	54 [°] 1 [']	35 [°] 00 [']	57 [°] 7 [']					
20	2 ^h 17 ^m	0 [°] 12 [']	58 [°] 4 [']	54 [°] 48 [']	55 [°] 0 [']	34 [°] 89 [']	57 [°] 5 [']					
30	2 ^h 05 ^m	0 [°] 11 [']	59 [°] 0 [']	54 [°] 35 [']	55 [°] 8 [']	34 [°] 77 [']	57 [°] 2 [']					
June 9	1 ^h 94 ^m	0 [°] 10 [']	59 [°] 7 [']	54 [°] 23 [']	56 [°] 4 [']	34 [°] 65 [']	56 [°] 6 [']					
19	1 ^h 84 ^m	0 [°] 10 [']	60 [°] 3 [']	54 [°] 11 [']	56 [°] 9 [']	34 [°] 54 [']	55 [°] 9 [']					
29	1 ^h 74 ^m	0 [°] 08 [']	60 [°] 8 [']	54 [°] 01 [']	57 [°] 2 [']	34 [°] 43 [']	55 [°] 1 [']					
July 9	1 ^h 66 ^m	0 [°] 07 [']	61 [°] 2 [']	53 [°] 91 [']	57 [°] 2 [']	34 [°] 34 [']	54 [°] 1 [']					
19	1 ^h 59 ^m	0 [°] 05 [']	61 [°] 6 [']	53 [°] 84 [']	57 [°] 1 [']	34 [°] 26 [']	53 [°] 0 [']					
29	1 ^h 54 ^m	0 [°] 03 [']	61 [°] 9 [']	53 [°] 78 [']	56 [°] 8 [']	34 [°] 19 [']	51 [°] 9 [']					
Aug. 8	1 ^h 51 ^m	0 [°] 00 [']	62 [°] 0 [']	53 [°] 73 [']	56 [°] 2 [']	34 [°] 14 [']	50 [°] 7 [']					
18	1 ^h 51 ^m	0 [°] 02 [']	62 [°] 0 [']	53 [°] 72 [']	55 [°] 5 [']	34 [°] 11 [']	49 [°] 6 [']					
28	1 ^h 53 ^m	0 [°] 05 [']	61 [°] 8 [']	53 [°] 73 [']	54 [°] 5 [']	34 [°] 11 [']	48 [°] 6 [']					
Sept. 7	1 ^h 58 ^m	0 [°] 08 [']	61 [°] 4 [']	53 [°] 71 [']	54 [°] 1 [']	34 [°] 14 [']	47 [°] 6 [']					
17	1 ^h 66 ^m	0 [°] 11 [']	60 [°] 8 [']	53 [°] 85 [']	51 [°] 9 [']	34 [°] 21 [']	46 [°] 8 [']					
27	1 ^h 77 ^m	0 [°] 15 [']	60 [°] 0 [']	53 [°] 96 [']	50 [°] 3 [']	34 [°] 31 [']	46 [°] 3 [']					
Oct. 7	1 ^h 92 ^m	0 [°] 19 [']	58 [°] 9 [']	54 [°] 11 [']	48 [°] 5 [']	34 [°] 45 [']	46 [°] 1 [']					
17	2 ^h 11 ^m	0 [°] 22 [']	57 [°] 6 [']	54 [°] 30 [']	46 [°] 6 [']	34 [°] 63 [']	46 [°] 3 [']					
27	2 ^h 33 ^m	0 [°] 26 [']	56 [°] 2 [']	54 [°] 52 [']	44 [°] 5 [']	34 [°] 85 [']	46 [°] 8 [']					
Nov. 6	2 ^h 59 ^m	0 [°] 29 [']	54 [°] 4 [']	54 [°] 78 [']	42 [°] 4 [']	35 [°] 10 [']	47 [°] 6 [']					
16	2 ^h 88 ^m	0 [°] 31 [']	52 [°] 5 [']	55 [°] 07 [']	40 [°] 2 [']	35 [°] 39 [']	48 [°] 8 [']					
26	3 ^h 19 ^m	0 [°] 32 [']	50 [°] 6 [']	55 [°] 39 [']	38 [°] 0 [']	35 [°] 70 [']	50 [°] 4 [']					
Dec. 6	3 ^h 51 ^m	0 [°] 32 [']	48 [°] 5 [']	55 [°] 73 [']	35 [°] 9 [']	36 [°] 02 [']	52 [°] 2 [']					
16	3 ^h 83 ^m	0 [°] 32 [']	46 [°] 5 [']	56 [°] 07 [']	34 [°] 0 [']	36 [°] 35 [']	54 [°] 3 [']					
26	4 ^h 15 ^m	0 [°] 30 [']	44 [°] 5 [']	56 [°] 41 [']	32 [°] 3 [']	36 [°] 68 [']	56 [°] 5 [']					
36	4 ^h 45 ^m	0 [°] 30 [']	42 [°] 7 [']	56 [°] 73 [']	30 [°] 8 [']	36 [°] 99 [']	58 [°] 9 [']					

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Leonis.		β Leonis.		γ Ursæ Majoris.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h II ^m 30	[°] 0 ['] 4	^h II ^m 42	[°] 15 ['] 19	^h II ^m 46	[°] 54 ['] 26
Jan. 1	0° 48' 0" 30	31° 2' 2" 1	8° 37' 0" 32	42° 9' 0" 17	40° 74' 0" 46	39° 6' 0" 5
11	0° 78' 0" 28	33° 3' 1" 9	8° 69' 0" 29	41° 2' 0" 14	41° 20' 0" 44	39° 1' 0" 1
21	1° 06' 0" 24	35° 2' 1" 7	8° 98' 0" 26	39° 8' 0" 11	41° 64' 0" 39	39° 2' 0" 7
31	1° 30' 0" 20	36° 9' 1" 4	9° 24' 0" 22	38° 7' 0" 7	42° 03' 0" 33	39° 9' 0" 12
Feb. 10	1° 50' 0" 16	38° 3' 1" 2	9° 46' 0" 18	38° 0' 0" 3	42° 36' 0" 27	41° 1' 0" 6
20	1° 66' 0" 12	39° 5' 1" 0	9° 64' 0" 13	37° 7' 0" 0	42° 63' 0" 19	42° 7' 0" 0
Mar. 1	1° 78' 0" 07	40° 5' 0" 7	9° 77' 0" 09	37° 7' 0" 2	42° 82' 0" 12	44° 7' 0" 3
11	1° 85' 0" 03	41° 2' 0" 4	9° 86' 0" 04	37° 9' 0" 5	42° 94' 0" 05	47° 0' 0" 5
21	1° 88' 0" 00	41° 6' 0" 2	9° 90' 0" 00	38° 4' 0" 8	42° 99' 0" 02	49° 5' 0" 5
31	1° 88' 0" 03	41° 8' 0" 0	9° 90' 0" 02	39° 2' 0" 8	42° 97' 0" 08	52° 0' 0" 6
Apr. 10	1° 85' 0" 06	41° 8' 0" 2	9° 88' 0" 06	40° 0' 0" 10	42° 89' 0" 14	54° 6' 0" 4
20	1° 79' 0" 08	41° 6' 0" 3	9° 82' 0" 08	41° 0' 0" 10	42° 75' 0" 18	57° 0' 0" 2
30	1° 71' 0" 09	41° 3' 0" 5	9° 74' 0" 09	42° 0' 0" 10	42° 57' 0" 22	59° 2' 0" 9
May 10	1° 62' 0" 10	40° 8' 0" 5	9° 65' 0" 11	43° 0' 0" 9	42° 35' 0" 24	61° 1' 0" 5
20	1° 52' 0" 11	40° 3' 0" 6	9° 54' 0" 12	43° 9' 0" 9	42° 11' 0" 26	62° 6' 0" 1
30	1° 41' 0" 10	39° 7' 0" 6	9° 42' 0" 11	44° 8' 0" 8	41° 85' 0" 27	63° 7' 0" 7
June 9	1° 31' 0" 11	39° 1' 0" 7	9° 31' 0" 12	45° 6' 0" 7	41° 58' 0" 26	64° 4' 0" 3
19	1° 20' 0" 10	38° 4' 0" 7	9° 19' 0" 11	46° 3' 0" 5	41° 32' 0" 24	64° 7' 0" 2
29	1° 10' 0" 09	37° 7' 0" 7	9° 08' 0" 10	46° 8' 0" 3	41° 08' 0" 24	64° 5' 0" 6
July 9	1° 01' 0" 09	37° 0' 0" 6	8° 98' 0" 09	47° 1' 0" 1	40° 84' 0" 21	63° 9' 0" 1
19	0° 92' 0" 07	36° 4' 0" 6	8° 89' 0" 09	47° 2' 0" 0	40° 63' 0" 19	62° 8' 0" 5
29	0° 85' 0" 05	35° 8' 0" 5	8° 80' 0" 07	47° 2' 0" 2	40° 44' 0" 16	61° 3' 0" 9
Aug. 8	0° 80' 0" 04	35° 3' 0" 4	8° 73' 0" 04	47° 1' 0" 4	40° 28' 0" 13	59° 4' 0" 2
18	0° 76' 0" 01	34° 9' 0" 3	8° 69' 0" 03	46° 7' 0" 5	40° 15' 0" 08	57° 2' 0" 5
28	0° 75' 0" 01	34° 6' 0" 1	8° 66' 0" 00	46° 2' 0" 8	40° 07' 0" 03	54° 7' 0" 8
Sept. 7	0° 76' 0" 05	34° 5' 0" 1	8° 66' 0" 04	45° 4' 0" 1	40° 04' 0" 01	51° 9' 0" 0
17	0° 81' 0" 09	34° 6' 0" 3	8° 71' 0" 07	44° 3' 0" 12	40° 05' 0" 08	48° 9' 0" 5
27	0° 90' 0" 12	34° 9' 0" 7	8° 77' 0" 11	43° 0' 0" 15	40° 13' 0" 14	45° 4' 0" 3
Oct. 7	1° 02' 0" 16	35° 6' 0" 8	8° 88' 0" 15	41° 5' 0" 17	40° 27' 0" 20	42° 1' 0" 2
17	1° 18' 0" 20	36° 4' 0" 2	9° 03' 0" 19	39° 8' 0" 20	40° 47' 0" 26	38° 9' 0" 3
27	1° 38' 0" 23	37° 6' 0" 4	9° 22' 0" 23	37° 8' 0" 20	40° 73' 0" 31	35° 6' 0" 3
Nov. 6	1° 61' 0" 27	39° 0' 0" 6	9° 45' 0" 26	35° 8' 0" 21	41° 04' 0" 36	32° 5' 0" 9
16	1° 88' 0" 30	40° 6' 0" 9	9° 71' 0" 29	33° 7' 0" 23	41° 40' 0" 41	29° 6' 0" 7
26	2° 18' 0" 31	42° 5' 0" 2	10° 00' 0" 31	31° 4' 0" 22	41° 81' 0" 45	26° 9' 0" 2
Dec. 6	2° 49' 0" 32	44° 5' 0" 1	10° 31' 0" 33	29° 2' 0" 21	42° 26' 0" 47	24° 7' 0" 8
16	2° 81' 0" 32	46° 6' 0" 1	10° 64' 0" 33	27° 1' 0" 20	42° 73' 0" 48	22° 9' 0" 4
26	3° 13' 0" 31	48° 7' 0" 1	10° 97' 0" 32	25° 1' 0" 18	43° 21' 0" 48	21° 5' 0" 7
36	3° 44' 0" 31	50° 8' 0" 1	11° 29' 0" 32	23° 3' 0" 18	43° 69' 0" 48	20° 8' 0" 7

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ε Corvi.				β Chamæleontis.				η Virginis.			
	R. A.		Dec. South.		R. A.		Dec. South.		R. A.		Dec. North.	
	h	m	°	'	h	m	°	'	h	m	°	'
	12	3	21	51	12	10	78	33	12	12	0	4
Jan. 1	9 ^s 36 ^s		47 ^s 3 ^s		29 ^s 74 ^s		11 ^s 9 ^s		57 ^s 94 ^s		74 ^s 7 ^s	
11	9 ^s 69 ^s	0 ^s 33	49 ^s 6 ^s	2 ^s 3	30 ^s 92 ^s	1 ^s 18	13 ^s 8 ^s	1 ^s 9	58 ^s 26 ^s	0 ^s 32	72 ^s 7 ^s	2 ^s 0
21	10 ^s 00 ^s	0 ^s 31	52 ^s 0 ^s	2 ^s 4	32 ^s 01 ^s	1 ^s 09	16 ^s 1 ^s	2 ^s 3	58 ^s 55 ^s	0 ^s 29	70 ^s 8 ^s	1 ^s 9
31	10 ^s 28 ^s	0 ^s 28	54 ^s 4 ^s	2 ^s 4	32 ^s 99 ^s	0 ^s 98	18 ^s 9 ^s	2 ^s 8	58 ^s 82 ^s	0 ^s 27	69 ^s 1 ^s	1 ^s 7
Feb. 10		0 ^s 24		2 ^s 3		0 ^s 84		3 ^s 1		0 ^s 24		1 ^s 5
20	10 ^s 52 ^s	0 ^s 19	56 ^s 7 ^s	2 ^s 3	33 ^s 83 ^s	0 ^s 69	22 ^s 0 ^s	3 ^s 4	59 ^s 06 ^s	0 ^s 20	67 ^s 6 ^s	1 ^s 3
Mar. 1	10 ^s 71 ^s	0 ^s 16	59 ^s 0 ^s	2 ^s 2	34 ^s 52 ^s	0 ^s 52	25 ^s 4 ^s	3 ^s 7	59 ^s 26 ^s	0 ^s 16	66 ^s 3 ^s	0 ^s 9
11	10 ^s 87 ^s	0 ^s 11	61 ^s 2 ^s	1 ^s 9	35 ^s 04 ^s	0 ^s 36	29 ^s 1 ^s	3 ^s 8	59 ^s 42 ^s	0 ^s 11	65 ^s 4 ^s	0 ^s 7
	10 ^s 98 ^s	0 ^s 07	63 ^s 1 ^s	1 ^s 7	35 ^s 40 ^s	0 ^s 19	32 ^s 9 ^s	3 ^s 8	59 ^s 53 ^s	0 ^s 08	64 ^s 7 ^s	0 ^s 4
21	11 ^s 05 ^s	0 ^s 03	64 ^s 8 ^s	1 ^s 5	35 ^s 59 ^s	0 ^s 02	36 ^s 7 ^s	3 ^s 7	59 ^s 61 ^s	0 ^s 04	64 ^s 3 ^s	0 ^s 1
31	11 ^s 08 ^s	0 ^s 00	66 ^s 3 ^s	1 ^s 3	35 ^s 61 ^s	0 ^s 14	40 ^s 4 ^s	3 ^s 6	59 ^s 65 ^s	0 ^s 01	64 ^s 2 ^s	0 ^s 0
Apr. 10	11 ^s 08 ^s	0 ^s 03	67 ^s 6 ^s	1 ^s 0	35 ^s 47 ^s	0 ^s 29	44 ^s 0 ^s	3 ^s 4	59 ^s 66 ^s	0 ^s 01	64 ^s 2 ^s	0 ^s 2
20	11 ^s 05 ^s	0 ^s 06	68 ^s 6 ^s	0 ^s 7	35 ^s 18 ^s	0 ^s 43	47 ^s 4 ^s	3 ^s 1	59 ^s 65 ^s	0 ^s 05	64 ^s 4 ^s	0 ^s 4
30	10 ^s 99 ^s	0 ^s 07	69 ^s 3 ^s	0 ^s 5	34 ^s 75 ^s	0 ^s 55	50 ^s 5 ^s	2 ^s 8	59 ^s 60 ^s	0 ^s 07	64 ^s 8 ^s	0 ^s 5
May 10	10 ^s 92 ^s	0 ^s 10	69 ^s 8 ^s	0 ^s 0	34 ^s 20 ^s	0 ^s 66	53 ^s 3 ^s	2 ^s 3	59 ^s 53 ^s	0 ^s 08	65 ^s 3 ^s	0 ^s 5
20	10 ^s 82 ^s	0 ^s 10	70 ^s 1 ^s	0 ^s 3	33 ^s 54 ^s	0 ^s 76	55 ^s 6 ^s	1 ^s 9	59 ^s 45 ^s	0 ^s 09	65 ^s 8 ^s	0 ^s 7
30	10 ^s 72 ^s	0 ^s 11	70 ^s 1 ^s	0 ^s 2	32 ^s 78 ^s	0 ^s 83	57 ^s 5 ^s	1 ^s 4	59 ^s 36 ^s	0 ^s 09	66 ^s 5 ^s	0 ^s 6
June 9	10 ^s 61 ^s	0 ^s 11	69 ^s 9 ^s	0 ^s 4	31 ^s 95 ^s	0 ^s 89	58 ^s 9 ^s	0 ^s 9	59 ^s 27 ^s	0 ^s 10	67 ^s 1 ^s	0 ^s 7
19	10 ^s 50 ^s	0 ^s 12	69 ^s 5 ^s	0 ^s 7	31 ^s 06 ^s	0 ^s 92	59 ^s 8 ^s	0 ^s 4	59 ^s 17 ^s	0 ^s 11	67 ^s 8 ^s	0 ^s 7
29	10 ^s 38 ^s	0 ^s 12	68 ^s 8 ^s	0 ^s 9	30 ^s 14 ^s	0 ^s 92	60 ^s 2 ^s	0 ^s 2	59 ^s 06 ^s	0 ^s 11	68 ^s 5 ^s	0 ^s 7
July 9	10 ^s 26 ^s	0 ^s 12	67 ^s 9 ^s	0 ^s 9	29 ^s 22 ^s	0 ^s 90	60 ^s 0 ^s	0 ^s 8	58 ^s 95 ^s	0 ^s 10	69 ^s 2 ^s	0 ^s 6
19	10 ^s 14 ^s	0 ^s 10	67 ^s 0 ^s	1 ^s 2	28 ^s 32 ^s	0 ^s 85	59 ^s 2 ^s	1 ^s 3	58 ^s 85 ^s	0 ^s 09	69 ^s 8 ^s	0 ^s 5
29	10 ^s 04 ^s	0 ^s 10	65 ^s 8 ^s	1 ^s 2	27 ^s 47 ^s	0 ^s 78	57 ^s 9 ^s	1 ^s 8	58 ^s 76 ^s	0 ^s 09	70 ^s 3 ^s	0 ^s 5
Aug. 8	9 ^s 94 ^s	0 ^s 08	64 ^s 6 ^s	1 ^s 3	26 ^s 69 ^s	0 ^s 66	56 ^s 1 ^s	2 ^s 3	58 ^s 67 ^s	0 ^s 06	70 ^s 8 ^s	0 ^s 4
18	9 ^s 86 ^s	0 ^s 05	63 ^s 3 ^s	1 ^s 3	26 ^s 03 ^s	0 ^s 52	53 ^s 8 ^s	2 ^s 6	58 ^s 61 ^s	0 ^s 05	71 ^s 2 ^s	0 ^s 2
28	9 ^s 81 ^s	0 ^s 02	62 ^s 0 ^s	1 ^s 3	25 ^s 51 ^s	0 ^s 36	51 ^s 2 ^s	2 ^s 8	58 ^s 56 ^s	0 ^s 03	71 ^s 4 ^s	0 ^s 1
Sept. 7	9 ^s 79 ^s	0 ^s 01	60 ^s 7 ^s	1 ^s 1	25 ^s 15 ^s	0 ^s 18	48 ^s 4 ^s	2 ^s 9	58 ^s 53 ^s	0 ^s 00	71 ^s 5 ^s	0 ^s 1
17	9 ^s 80 ^s	0 ^s 05	59 ^s 6 ^s	1 ^s 1	24 ^s 97 ^s	0 ^s 02	45 ^s 5 ^s	3 ^s 4	58 ^s 53 ^s	0 ^s 04	71 ^s 4 ^s	0 ^s 3
27	9 ^s 85 ^s	0 ^s 10	58 ^s 5 ^s	0 ^s 7	24 ^s 99 ^s	0 ^s 24	42 ^s 1 ^s	3 ^s 0	58 ^s 57 ^s	0 ^s 08	71 ^s 1 ^s	0 ^s 7
Oct. 7	9 ^s 95 ^s	0 ^s 14	57 ^s 8 ^s	0 ^s 4	25 ^s 23 ^s	0 ^s 45	39 ^s 1 ^s	2 ^s 9	58 ^s 65 ^s	0 ^s 12	70 ^s 4 ^s	0 ^s 8
17	10 ^s 09 ^s	0 ^s 18	57 ^s 4 ^s	0 ^s 0	25 ^s 68 ^s	0 ^s 64	36 ^s 2 ^s	2 ^s 5	58 ^s 77 ^s	0 ^s 16	69 ^s 6 ^s	1 ^s 1
27	10 ^s 27 ^s	0 ^s 23	57 ^s 4 ^s	0 ^s 3	26 ^s 32 ^s	0 ^s 82	33 ^s 7 ^s	2 ^s 1	58 ^s 93 ^s	0 ^s 19	68 ^s 5 ^s	1 ^s 4
Nov. 6	10 ^s 50 ^s	0 ^s 26	57 ^s 7 ^s	0 ^s 6	27 ^s 14 ^s	0 ^s 98	31 ^s 6 ^s	1 ^s 6	59 ^s 12 ^s	0 ^s 24	67 ^s 1 ^s	1 ^s 6
16	10 ^s 76 ^s	0 ^s 30	58 ^s 3 ^s	1 ^s 0	28 ^s 12 ^s	1 ^s 11	30 ^s 0 ^s	1 ^s 1	59 ^s 36 ^s	0 ^s 27	65 ^s 5 ^s	1 ^s 8
26	11 ^s 06 ^s	0 ^s 33	59 ^s 3 ^s	1 ^s 5	29 ^s 23 ^s	1 ^s 19	28 ^s 9 ^s	0 ^s 4	59 ^s 63 ^s	0 ^s 31	63 ^s 7 ^s	2 ^s 0
Dec. 6	11 ^s 39 ^s	0 ^s 34	60 ^s 8 ^s	1 ^s 7	30 ^s 42 ^s	1 ^s 23	28 ^s 5 ^s	0 ^s 2	59 ^s 94 ^s	0 ^s 32	61 ^s 7 ^s	2 ^s 1
16	11 ^s 73 ^s	0 ^s 34	62 ^s 5 ^s	2 ^s 0	31 ^s 65 ^s	1 ^s 25	28 ^s 7 ^s	0 ^s 9	60 ^s 26 ^s	0 ^s 33	59 ^s 6 ^s	2 ^s 1
26	12 ^s 07 ^s	0 ^s 34	64 ^s 5 ^s	2 ^s 2	32 ^s 90 ^s	1 ^s 24	29 ^s 6 ^s	1 ^s 4	60 ^s 59 ^s	0 ^s 32	57 ^s 5 ^s	2 ^s 1
36	12 ^s 41 ^s	0 ^s 34	66 ^s 7 ^s	2 ^s 2	34 ^s 14 ^s	1 ^s 24	31 ^s 0 ^s	1 ^s 4	60 ^s 91 ^s	0 ^s 32	55 ^s 4 ^s	2 ^s 1

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Crucis.			β Corvi.			γ Virginis.		
	R. A.	Dec. South.		R. A.	Dec. South.		R. A.	Dec. South.	
	^h 12	^m 19	[°] 62 ['] 20	^h 12	^m 27	[°] 22 ['] 38	^h 12	^m 34	[°] 0 ['] 42
Jan. 1	5 ^s 10	0 ^s 58	26 ^s 8	15 ^s 91	0 ^s 34	38 ^s 8	47 ^s 15	0 ^s 32	19 ^s 0
11	5 ^s 68	0 ^s 54	28 ^s 8	16 ^s 25	0 ^s 32	41 ^s 0	47 ^s 47	0 ^s 31	21 ^s 1
21	6 ^s 22	0 ^s 48	31 ^s 2	16 ^s 57	0 ^s 29	43 ^s 3	47 ^s 78	0 ^s 29	23 ^s 0
31	6 ^s 70	0 ^s 42	34 ^s 0	16 ^s 86	0 ^s 26	45 ^s 6	48 ^s 07	0 ^s 25	24 ^s 7
Feb. 10	7 ^s 12	0 ^s 35	37 ^s 2	17 ^s 12	0 ^s 22	48 ^s 0	48 ^s 32	0 ^s 21	26 ^s 3
20	7 ^s 47	0 ^s 28	40 ^s 5	17 ^s 34	0 ^s 18	50 ^s 2	48 ^s 53	0 ^s 18	27 ^s 5
Mar. 1	7 ^s 75	0 ^s 20	43 ^s 9	17 ^s 52	0 ^s 14	52 ^s 3	48 ^s 71	0 ^s 13	28 ^s 5
11	7 ^s 95	0 ^s 13	47 ^s 4	17 ^s 66	0 ^s 09	54 ^s 2	48 ^s 84	0 ^s 10	29 ^s 2
21	8 ^s 08	0 ^s 06	50 ^s 9	17 ^s 75	0 ^s 06	56 ^s 0	48 ^s 94	0 ^s 06	29 ^s 7
31	8 ^s 14	0 ^s 01	54 ^s 3	17 ^s 81	0 ^s 03	57 ^s 5	49 ^s 00	0 ^s 03	29 ^s 9
Apr. 10	8 ^s 13	0 ^s 07	57 ^s 4	17 ^s 84	0 ^s 00	58 ^s 8	49 ^s 03	0 ^s 00	29 ^s 9
20	8 ^s 06	0 ^s 13	60 ^s 4	17 ^s 84	0 ^s 04	59 ^s 9	49 ^s 03	0 ^s 02	29 ^s 7
30	7 ^s 93	0 ^s 18	63 ^s 1	17 ^s 80	0 ^s 06	60 ^s 7	49 ^s 01	0 ^s 05	29 ^s 3
May 10	7 ^s 75	0 ^s 23	65 ^s 4	17 ^s 74	0 ^s 07	61 ^s 3	48 ^s 96	0 ^s 07	28 ^s 8
20	7 ^s 52	0 ^s 26	67 ^s 3	17 ^s 67	0 ^s 09	61 ^s 7	48 ^s 89	0 ^s 08	28 ^s 3
30	7 ^s 26	0 ^s 29	68 ^s 8	17 ^s 58	0 ^s 10	61 ^s 8	48 ^s 81	0 ^s 09	27 ^s 6
June 9	6 ^s 97	0 ^s 32	69 ^s 9	17 ^s 48	0 ^s 11	61 ^s 7	48 ^s 72	0 ^s 10	27 ^s 0
19	6 ^s 65	0 ^s 33	70 ^s 4	17 ^s 37	0 ^s 12	61 ^s 4	48 ^s 62	0 ^s 10	26 ^s 8
29	6 ^s 32	0 ^s 34	70 ^s 5	17 ^s 25	0 ^s 12	60 ^s 9	48 ^s 52	0 ^s 11	25 ^s 6
July 9	5 ^s 98	0 ^s 33	70 ^s 1	17 ^s 13	0 ^s 13	60 ^s 2	48 ^s 41	0 ^s 11	24 ^s 9
19	5 ^s 65	0 ^s 32	69 ^s 2	17 ^s 00	0 ^s 11	59 ^s 3	48 ^s 30	0 ^s 10	24 ^s 3
29	5 ^s 33	0 ^s 29	67 ^s 9	16 ^s 89	0 ^s 11	58 ^s 2	48 ^s 20	0 ^s 10	23 ^s 7
Aug. 8	5 ^s 04	0 ^s 25	66 ^s 1	16 ^s 78	0 ^s 10	57 ^s 1	48 ^s 10	0 ^s 09	23 ^s 2
18	4 ^s 79	0 ^s 21	64 ^s 0	16 ^s 68	0 ^s 07	55 ^s 9	48 ^s 01	0 ^s 07	22 ^s 8
28	4 ^s 58	0 ^s 14	61 ^s 6	16 ^s 61	0 ^s 04	54 ^s 7	47 ^s 94	0 ^s 05	22 ^s 5
Sept. 7	4 ^s 44	0 ^s 06	59 ^s 0	16 ^s 57	0 ^s 01	53 ^s 4	47 ^s 89	0 ^s 02	22 ^s 4
17	4 ^s 38	0 ^s 02	56 ^s 2	16 ^s 56	0 ^s 02	52 ^s 2	47 ^s 87	0 ^s 02	22 ^s 5
27	{4 ^s 30}	0 ^s 11	{53 ^s 4}	16 ^s 58	0 ^s 06	51 ^s 2	47 ^s 89	0 ^s 06	22 ^s 8
Oct. 7	4 ^s 51	0 ^s 21	50 ^s 6	16 ^s 64	0 ^s 11	50 ^s 3	47 ^s 95	0 ^s 10	23 ^s 3
17	4 ^s 72	0 ^s 29	48 ^s 1	16 ^s 75	0 ^s 16	49 ^s 8	48 ^s 05	0 ^s 14	24 ^s 1
27	5 ^s 01	0 ^s 38	46 ^s 0	16 ^s 91	0 ^s 21	49 ^s 6	48 ^s 19	0 ^s 18	25 ^s 1
Nov. 6	5 ^s 39	0 ^s 45	44 ^s 3	17 ^s 12	0 ^s 25	49 ^s 7	48 ^s 37	0 ^s 22	26 ^s 5
16	5 ^s 84	0 ^s 52	43 ^s 1	17 ^s 37	0 ^s 29	50 ^s 2	48 ^s 59	0 ^s 26	28 ^s 0
26	6 ^s 36	0 ^s 56	42 ^s 5	17 ^s 66	0 ^s 32	51 ^s 1	48 ^s 85	0 ^s 29	29 ^s 8
Dec. 6	6 ^s 92	0 ^s 58	42 ^s 5	17 ^s 98	0 ^s 34	52 ^s 4	49 ^s 14	0 ^s 31	31 ^s 7
16	7 ^s 50	0 ^s 59	43 ^s 1	18 ^s 32	0 ^s 34	54 ^s 0	49 ^s 45	0 ^s 33	33 ^s 8
26	8 ^s 09	0 ^s 58	44 ^s 2	18 ^s 66	0 ^s 35	55 ^s 9	49 ^s 78	0 ^s 32	35 ^s 9
36	8 ^s 67	0 ^s 58	45 ^s 8	19 ^s 01	0 ^s 35	57 ^s 9	50 ^s 10	0 ^s 32	38 ^s 0

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	12 Canum Venaticor.		θ Virginis.		α Virginis. (Spica)	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 12 ^m 49	[°] 39 ['] 2	^h 13 ^m 2	[°] 4 ['] 48	^h 13 ^m 18	[°] 10 ['] 27
Jan. I	40° 07' 0.38	54° 1' 1.5	55° 42' 0.33	47° 6' 2.1	2° 62' 0.33	3° 5' 1.9
II	40° 45' 0.37	52° 6' 1.1	55° 75' 0.31	49° 7' 1.9	2° 95' 0.33	5° 4' 2.0
21	40° 82' 0.35	51° 5' 0.5	56° 06' 0.30	51° 6' 1.9	3° 28' 0.30	7° 4' 1.9
31	41° 17' 0.31	51° 0' 0.0	56° 36' 0.27	53° 5' 1.6	3° 58' 0.28	9° 3' 1.8
Feb. 10	41° 48' 0.28	51° 0' 0.6	56° 63' 0.24	55° 1' 1.4	3° 86' 0.25	11° 1' 1.6
20	41° 76' 0.23	51° 6' 1.0	56° 87' 0.20	56° 5' 1.2	4° 11' 0.22	12° 7' 1.5
Mar. I	41° 99' 0.17	52° 6' 1.4	57° 07' 0.17	57° 7' 1.0	4° 33' 0.18	14° 2' 1.2
11	42° 16' 0.13	54° 0' 1.8	57° 24' 0.12	58° 7' 0.7	4° 51' 0.14	15° 4' 0.9
21	42° 29' 0.07	55° 8' 2.0	57° 36' 0.09	59° 4' 0.4	4° 65' 0.11	16° 3' 0.8
31	42° 36' 0.03	57° 8' 2.2	57° 45' 0.07	59° 8' 0.2	4° 76' 0.08	17° 1' 0.5
Apr. 10	42° 39' 0.02	60° 0' 2.2	57° 52' 0.03	60° 0' 0.0	4° 84' 0.05	17° 6' 0.3
20	42° 37' 0.05	62° 2' 2.2	57° 55' 0.00	60° 0' 0.2	4° 89' 0.02	17° 9' 0.2
30	42° 32' 0.09	64° 4' 2.1	57° 55' 0.02	59° 8' 0.3	4° 91' 0.01	18° 1' 0.0
May 10	42° 23' 0.11	66° 5' 2.0	57° 53' 0.05	59° 5' 0.4	4° 90' 0.03	18° 1' 0.2
20	42° 12' 0.14	68° 5' 1.7	57° 48' 0.06	59° 1' 0.5	4° 87' 0.05	17° 9' 0.3
30	41° 98' 0.15	70° 2' 1.3	57° 42' 0.07	58° 6' 0.6	4° 82' 0.07	17° 6' 0.4
June 9	41° 83' 0.17	71° 5' 1.1	57° 35' 0.09	58° 0' 0.6	4° 75' 0.08	17° 2' 0.5
19	41° 66' 0.17	72° 6' 0.7	57° 26' 0.10	57° 4' 0.7	4° 67' 0.10	16° 7' 0.5
29	41° 49' 0.17	73° 3' 0.3	57° 16' 0.11	56° 7' 0.6	4° 57' 0.11	16° 2' 0.6
July 9	41° 32' 0.17	73° 6' 0.1	57° 05' 0.11	56° 1' 0.7	4° 46' 0.12	15° 6' 0.7
19	41° 15' 0.17	73° 5' 0.4	56° 94' 0.12	55° 4' 0.7	4° 34' 0.11	14° 9' 0.7
29	40° 98' 0.16	73° 1' 0.8	56° 82' 0.11	54° 7' 0.6	4° 23' 0.12	14° 2' 0.7
Aug. 8	40° 82' 0.14	72° 3' 1.2	56° 71' 0.11	54° 1' 0.5	4° 11' 0.12	13° 5' 0.7
18	40° 68' 0.12	71° 1' 1.5	56° 60' 0.09	53° 6' 0.4	3° 99' 0.10	12° 8' 0.6
28	40° 56' 0.10	69° 6' 1.9	56° 51' 0.06	53° 2' 0.3	3° 89' 0.08	12° 2' 0.6
Sept. 7	40° 46' 0.06	67° 7' 2.2	56° 45' 0.05	52° 9' 0.2	3° 81' 0.06	11° 6' 0.5
17	40° 40' 0.02	65° 5' 2.4	56° 40' 0.01	52° 7' 0.0	3° 75' 0.03	11° 1' 0.3
27	40° 38' 0.02	63° 1' 2.9	56° 39' 0.02	52° 7' 0.2	3° 72' 0.01	10° 8' 0.1
Oct. 7	40° 40' 0.08	60° 2' 2.9	56° 41' 0.08	52° 9' 0.6	3° 73' 0.06	10° 7' 0.2
17	40° 48' 0.13	57° 3' 3.1	56° 49' 0.11	53° 5' 0.7	3° 79' 0.10	10° 9' 0.4
27	40° 61' 0.18	54° 2' 3.2	56° 60' 0.17	54° 2' 1.1	3° 89' 0.15	11° 3' 0.6
Nov. 6	40° 79' 0.23	51° 0' 3.0	56° 77' 0.20	55° 3' 1.3	4° 04' 0.20	11° 9' 0.9
16	41° 02' 0.27	48° 0' 2.9	56° 97' 0.24	56° 6' 1.5	4° 24' 0.24	12° 8' 1.3
26	41° 29' 0.32	45° 1' 2.8	57° 21' 0.28	58° 1' 1.7	4° 48' 0.27	14° 1' 1.5
Dec. 6	41° 61' 0.36	42° 3' 2.5	57° 49' 0.31	59° 8' 2.0	4° 75' 0.31	15° 6' 1.7
16	41° 97' 0.37	39° 8' 2.2	57° 80' 0.32	61° 8' 2.0	5° 06' 0.32	17° 3' 1.8
26	42° 34' 0.38	37° 6' 1.8	58° 12' 0.32	63° 8' 2.1	5° 38' 0.32	19° 1' 2.0
36	42° 72' 0.38	35° 8' 1.8	58° 44' 0.32	65° 9' 2.1	5° 70' 0.32	21° 1' 2.0

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Virginis.			η Ursæ Majoris.			η Bootis.		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. North.	
	^h 13	^m 27	[°] 5	^h 13	^m 42	[°] 49 58	^h 13	^m 48	[°] 19 4
Jan. I	46 ^s 56 ^s	0 ^s 33	57 ^s 8 ^s	10 ^s 44 ^s	0 ^s 42	75 ^s 9 ^s	12 ^s 85 ^s	0 ^s 33	39 ^s 8 ^s
II	46 ^s 89 ^s	0 ^s 32	55 ^s 8 ^s	10 ^s 86 ^s	0 ^s 43	74 ^s 1 ^s	13 ^s 18 ^s	0 ^s 32	37 ^s 7 ^s
2I	47 ^s 21 ^s	0 ^s 30	53 ^s 9 ^s	11 ^s 29 ^s	0 ^s 42	72 ^s 8 ^s	13 ^s 50 ^s	0 ^s 32	35 ^s 9 ^s
3I	47 ^s 51 ^s	0 ^s 28	52 ^s 2 ^s	11 ^s 71 ^s	0 ^s 40	72 ^s 1 ^s	13 ^s 82 ^s	0 ^s 30	34 ^s 5 ^s
Feb. 10	47 ^s 79 ^s	0 ^s 25	50 ^s 7 ^s	12 ^s 11 ^s	0 ^s 36	72 ^s 0 ^s	14 ^s 12 ^s	0 ^s 28	33 ^s 4 ^s
20	48 ^s 04 ^s	0 ^s 22	49 ^s 5 ^s	12 ^s 47 ^s	0 ^s 32	72 ^s 5 ^s	14 ^s 40 ^s	0 ^s 24	32 ^s 8 ^s
Mar. I	48 ^s 26 ^s	0 ^s 19	48 ^s 5 ^s	12 ^s 79 ^s	0 ^s 26	73 ^s 6 ^s	14 ^s 64 ^s	0 ^s 21	32 ^s 7 ^s
II	48 ^s 45 ^s	0 ^s 15	47 ^s 9 ^s	13 ^s 05 ^s	0 ^s 22	75 ^s 2 ^s	14 ^s 85 ^s	0 ^s 17	33 ^s 0 ^s
2I	48 ^s 60 ^s	0 ^s 11	47 ^s 5 ^s	13 ^s 27 ^s	0 ^s 15	77 ^s 3 ^s	15 ^s 02 ^s	0 ^s 13	33 ^s 6 ^s
3I	48 ^s 71 ^s	0 ^s 09	47 ^s 4 ^s	13 ^s 42 ^s	0 ^s 10	79 ^s 7 ^s	15 ^s 15 ^s	0 ^s 10	34 ^s 6 ^s
Apr. 10	48 ^s 80 ^s	0 ^s 05	47 ^s 5 ^s	13 ^s 52 ^s	0 ^s 04	82 ^s 3 ^s	15 ^s 25 ^s	0 ^s 07	35 ^s 8 ^s
20	48 ^s 85 ^s	0 ^s 02	47 ^s 9 ^s	13 ^s 56 ^s	0 ^s 02	85 ^s 0 ^s	15 ^s 32 ^s	0 ^s 03	37 ^s 2 ^s
30	48 ^s 87 ^s	0 ^s 00	48 ^s 4 ^s	13 ^s 54 ^s	0 ^s 06	87 ^s 8 ^s	15 ^s 35 ^s	0 ^s 00	38 ^s 8 ^s
May 10	48 ^s 87 ^s	0 ^s 03	48 ^s 9 ^s	13 ^s 48 ^s	0 ^s 10	90 ^s 5 ^s	15 ^s 35 ^s	0 ^s 02	40 ^s 4 ^s
20	48 ^s 84 ^s	0 ^s 04	49 ^s 6 ^s	13 ^s 38 ^s	0 ^s 14	93 ^s 0 ^s	15 ^s 33 ^s	0 ^s 05	42 ^s 0 ^s
30	48 ^s 80 ^s	0 ^s 07	50 ^s 4 ^s	13 ^s 24 ^s	0 ^s 18	95 ^s 3 ^s	15 ^s 28 ^s	0 ^s 07	43 ^s 5 ^s
June 9	48 ^s 73 ^s	0 ^s 08	51 ^s 2 ^s	13 ^s 06 ^s	0 ^s 20	97 ^s 2 ^s	15 ^s 21 ^s	0 ^s 09	45 ^s 0 ^s
19	48 ^s 65 ^s	0 ^s 09	52 ^s 0 ^s	12 ^s 86 ^s	0 ^s 23	98 ^s 8 ^s	15 ^s 12 ^s	0 ^s 11	46 ^s 2 ^s
29	48 ^s 56 ^s	0 ^s 11	52 ^s 7 ^s	12 ^s 63 ^s	0 ^s 24	99 ^s 9 ^s	15 ^s 01 ^s	0 ^s 12	47 ^s 3 ^s
July 9	48 ^s 45 ^s	0 ^s 11	53 ^s 3 ^s	12 ^s 39 ^s	0 ^s 25	100 ^s 6 ^s	14 ^s 89 ^s	0 ^s 13	48 ^s 2 ^s
19	48 ^s 34 ^s	0 ^s 12	53 ^s 9 ^s	12 ^s 14 ^s	0 ^s 25	100 ^s 9 ^s	14 ^s 76 ^s	0 ^s 14	48 ^s 9 ^s
29	48 ^s 22 ^s	0 ^s 12	54 ^s 6 ^s	11 ^s 89 ^s	0 ^s 24	100 ^s 7 ^s	14 ^s 62 ^s	0 ^s 15	49 ^s 2 ^s
Aug. 8	48 ^s 10 ^s	0 ^s 12	55 ^s 1 ^s	11 ^s 65 ^s	0 ^s 24	100 ^s 1 ^s	14 ^s 47 ^s	0 ^s 14	49 ^s 3 ^s
18	47 ^s 98 ^s	0 ^s 11	55 ^s 5 ^s	11 ^s 41 ^s	0 ^s 23	98 ^s 9 ^s	14 ^s 33 ^s	0 ^s 13	49 ^s 2 ^s
28	47 ^s 87 ^s	0 ^s 09	55 ^s 7 ^s	11 ^s 18 ^s	0 ^s 19	97 ^s 4 ^s	14 ^s 20 ^s	0 ^s 11	48 ^s 8 ^s
Sept. 7	47 ^s 78 ^s	0 ^s 07	55 ^s 8 ^s	10 ^s 99 ^s	0 ^s 17	95 ^s 4 ^s	14 ^s 09 ^s	0 ^s 09	48 ^s 0 ^s
17	47 ^s 71 ^s	0 ^s 04	55 ^s 7 ^s	10 ^s 82 ^s	0 ^s 12	93 ^s 1 ^s	14 ^s 00 ^s	0 ^s 07	47 ^s 0 ^s
27	47 ^s 67 ^s	0 ^s 00	55 ^s 4 ^s	10 ^s 70 ^s	0 ^s 07	90 ^s 4 ^s	13 ^s 93 ^s	0 ^s 04	45 ^s 8 ^s
Oct. 7	47 ^s 67 ^s	0 ^s 04	54 ^s 9 ^s	10 ^s 63 ^s	0 ^s 02	87 ^s 4 ^s	13 ^s 89 ^s	0 ^s 01	44 ^s 2 ^s
17	47 ^s 71 ^s	0 ^s 09	54 ^s 1 ^s	10 ^s 61 ^s	0 ^s 05	84 ^s 2 ^s	13 ^s 90 ^s	0 ^s 06	42 ^s 3 ^s
27	47 ^s 80 ^s	0 ^s 13	53 ^s 1 ^s	10 ^s 66 ^s	0 ^s 12	80 ^s 5 ^s	13 ^s 96 ^s	0 ^s 11	40 ^s 1 ^s
Nov. 6	47 ^s 93 ^s	0 ^s 19	51 ^s 8 ^s	10 ^s 78 ^s	0 ^s 18	77 ^s 0 ^s	14 ^s 07 ^s	0 ^s 16	37 ^s 8 ^s
16	48 ^s 12 ^s	0 ^s 22	50 ^s 3 ^s	10 ^s 96 ^s	0 ^s 24	73 ^s 5 ^s	14 ^s 23 ^s	0 ^s 20	35 ^s 3 ^s
26	48 ^s 34 ^s	0 ^s 26	48 ^s 6 ^s	11 ^s 20 ^s	0 ^s 30	70 ^s 1 ^s	14 ^s 43 ^s	0 ^s 24	32 ^s 8 ^s
Dec. 6	48 ^s 60 ^s	0 ^s 29	46 ^s 7 ^s	11 ^s 50 ^s	0 ^s 35	66 ^s 9 ^s	14 ^s 67 ^s	0 ^s 28	30 ^s 2 ^s
16	48 ^s 89 ^s	0 ^s 31	44 ^s 7 ^s	11 ^s 85 ^s	0 ^s 39	64 ^s 0 ^s	14 ^s 95 ^s	0 ^s 31	27 ^s 6 ^s
26	49 ^s 20 ^s	0 ^s 30	42 ^s 6 ^s	12 ^s 24 ^s	0 ^s 42	61 ^s 4 ^s	15 ^s 26 ^s	0 ^s 31	25 ^s 2 ^s
36	49 ^s 50 ^s	0 ^s 30	40 ^s 6 ^s	12 ^s 66 ^s	0 ^s 42	59 ^s 3 ^s	15 ^s 57 ^s	0 ^s 31	23 ^s 0 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Centauri.			τ Virginis.			α Bootis. (Arcturus)		
	R. A.		Dec. South.	R. A.		Dec. North.	R. A.		Dec. North.
	h	m	° ' "	h	m	° ' "	h	m	° ' "
	13	54	59 42	13	54	2 11	14	9	19 5
Jan. 1	16.28	0.57	40.2 0.7	44.03	0.32	69.6 0.0	27.68	0.32	21.0 0.0
11	16.85	0.56	40.9 1.2	44.35	0.32	67.6 1.9	28.00	0.32	18.7 0.0
21	17.41	0.55	42.1 1.7	44.67	0.31	65.7 1.7	28.32	0.32	16.8 0.0
31	17.96	0.52	43.8 2.1	44.98	0.28	64.0 1.4	28.64	0.31	15.3 0.0
Feb. 10	18.48	0.48	45.9 2.3	45.26	0.27	62.6 1.2	28.95	0.28	14.2 0.0
20	18.96	0.43	48.2 2.6	45.53	0.25	61.4 0.8	29.23	0.26	13.5 0.0
Mar. 1	19.39	0.38	50.8 2.9	45.78	0.21	60.6 0.5	29.49	0.22	13.2 0.0
11	19.77	0.31	53.7 2.9	45.99	0.17	60.1 0.2	29.71	0.18	13.4 0.0
21	20.08	0.26	56.6 2.9	46.16	0.14	59.9 0.0	29.89	0.15	14.0 0.0
31	20.34	0.20	59.5 3.0	46.30	0.11	59.9 0.2	30.04	0.12	15.0 0.0
Apr. 10	20.54	0.14	62.5 2.9	46.41	0.08	60.1 0.5	30.16	0.09	16.2 0.0
20	20.68	0.07	65.4 2.7	46.49	0.05	60.6 0.7	30.25	0.05	17.7 0.0
30	20.75	0.02	68.1 2.6	46.54	0.02	61.3 0.8	30.30	0.02	19.3 0.0
May 10	20.77	0.03	70.7 2.4	46.56	0.01	62.1 0.8	30.32	0.01	20.9 0.0
20	20.74	0.09	73.1 2.1	46.55	0.02	62.9 0.9	30.31	0.04	22.6 0.0
30	20.65	0.14	75.2 1.8	46.53	0.05	63.8 0.9	30.27	0.06	24.2 0.0
June 9	20.51	0.19	77.0 1.4	46.48	0.07	64.7 0.9	30.21	0.08	25.8 0.0
19	20.32	0.23	78.4 1.0	46.41	0.09	65.6 0.8	30.13	0.10	27.2 0.0
29	20.09	0.26	79.4 0.6	46.32	0.10	66.4 0.8	30.03	0.12	28.4 0.0
July 9	19.83	0.30	80.0 0.1	46.22	0.11	67.2 0.6	29.91	0.13	29.4 0.0
19	19.53	0.31	80.1 0.3	46.11	0.13	67.8 0.6	29.78	0.15	30.0 0.0
29	19.22	0.32	79.8 0.7	45.98	0.13	68.4 0.5	29.63	0.15	30.4 0.0
Aug. 8	18.90	0.31	79.1 1.2	45.85	0.13	68.9 0.3	29.48	0.16	30.6 0.0
18	18.59	0.29	77.9 1.5	45.72	0.12	69.2 0.2	29.32	0.15	30.5 0.0
28	18.30	0.26	76.4 1.9	45.60	0.11	69.4 0.0	29.17	0.13	30.0 0.0
Sept. 7	18.04	0.21	74.5 2.2	45.49	0.09	69.4 0.2	29.04	0.12	29.4 0.0
17	17.83	0.15	72.3 2.4	45.40	0.06	69.2 0.3	28.92	0.09	28.4 0.0
27	17.68	0.07	69.9 2.5	45.34	0.03	68.9 0.7	28.83	0.05	27.1 0.0
Oct. 7	17.61	0.01	67.4 2.5	45.31	0.02	68.2 0.8	28.78	0.02	25.5 0.0
17	17.62	0.11	64.9 2.6	45.33	0.06	67.4 1.2	28.76	0.03	23.6 0.0
27	17.73	0.20	62.3 2.1	45.39	0.11	66.2 1.3	28.79	0.09	21.5 0.0
Nov. 6	17.93	0.28	60.2 1.9	45.50	0.15	64.9 1.6	28.88	0.13	18.9 0.0
16	18.21	0.36	58.3 1.5	45.65	0.20	63.3 1.8	29.01	0.18	16.4 0.0
26	18.57	0.43	56.8 1.1	45.85	0.24	61.5 1.9	29.19	0.23	13.8 0.0
Dec. 6	19.00	0.50	55.7 0.5	46.09	0.28	59.6 2.1	29.42	0.26	11.1 0.0
16	19.50	0.54	55.2 0.0	46.37	0.29	57.5 2.0	29.68	0.30	8.4 0.0
26	20.04	0.56	55.2 0.5	46.66	0.32	55.5 2.0	29.98	0.31	5.9 0.0
36	20.60		55.7 0.5	46.98		53.5 2.0	30.29		3.5 0.0

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ρ Bootis.		α Centauri.		ϵ Bootis.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h ^m 14 25	[°] ['] 30 57	^h ^m 14 30	[°] ['] 60 15	^h ^m 14 39	[°] ['] 27 38
Jan. 1	58 ^s 02 ^s	59 ^s 7 ^s	24 ^s 74 ^s	55 ^s 2 ^s	2 ^s 66 ^s	46 ^s 2 ^s
11	58 ^s 36 ^s	57 ^s 4 ^s	25 ^s 30 ^s	55 ^s 5 ^s	2 ^s 99 ^s	43 ^s 9 ^s
21	58 ^s 70 ^s	55 ^s 6 ^s	25 ^s 87 ^s	56 ^s 2 ^s	3 ^s 32 ^s	41 ^s 9 ^s
31	59 ^s 04 ^s	54 ^s 2 ^s	26 ^s 43 ^s	57 ^s 3 ^s	3 ^s 65 ^s	40 ^s 3 ^s
	0 ^s 33	0 ^s 9	0 ^s 54	1 ^s 5	0 ^s 33	1 ^s 1
Feb. 10	59 ^s 37 ^s	53 ^s 3 ^s	26 ^s 97 ^s	58 ^s 8 ^s	3 ^s 98 ^s	39 ^s 2 ^s
20	59 ^s 68 ^s	52 ^s 9 ^s	27 ^s 48 ^s	60 ^s 7 ^s	4 ^s 29 ^s	38 ^s 7 ^s
Mar. 1	59 ^s 97 ^s	53 ^s 0 ^s	27 ^s 96 ^s	62 ^s 9 ^s	4 ^s 57 ^s	38 ^s 7 ^s
11	60 ^s 22 ^s	53 ^s 6 ^s	28 ^s 39 ^s	65 ^s 3 ^s	4 ^s 83 ^s	39 ^s 1 ^s
	0 ^s 21	1 ^s 1	0 ^s 37	2 ^s 6	0 ^s 22	0 ^s 9
21	60 ^s 43 ^s	54 ^s 7 ^s	28 ^s 76 ^s	67 ^s 9 ^s	5 ^s 05 ^s	40 ^s 0 ^s
31	60 ^s 61 ^s	56 ^s 2 ^s	29 ^s 08 ^s	70 ^s 6 ^s	5 ^s 24 ^s	41 ^s 3 ^s
Apr. 10	60 ^s 75 ^s	58 ^s 0 ^s	29 ^s 34 ^s	73 ^s 4 ^s	5 ^s 39 ^s	43 ^s 0 ^s
20	60 ^s 85 ^s	60 ^s 1 ^s	29 ^s 54 ^s	76 ^s 1 ^s	5 ^s 50 ^s	44 ^s 9 ^s
	0 ^s 07	2 ^s 2	0 ^s 15	2 ^s 7	0 ^s 08	2 ^s 1
May 30	60 ^s 92 ^s	62 ^s 3 ^s	29 ^s 69 ^s	78 ^s 8 ^s	5 ^s 58 ^s	47 ^s 0 ^s
10	60 ^s 95 ^s	64 ^s 5 ^s	29 ^s 77 ^s	81 ^s 4 ^s	5 ^s 63 ^s	49 ^s 1 ^s
20	60 ^s 94 ^s	66 ^s 8 ^s	29 ^s 79 ^s	83 ^s 8 ^s	5 ^s 64 ^s	51 ^s 3 ^s
30	60 ^s 90 ^s	68 ^s 9 ^s	29 ^s 75 ^s	86 ^s 0 ^s	5 ^s 62 ^s	53 ^s 4 ^s
	0 ^s 07	2 ^s 0	0 ^s 10	2 ^s 0	0 ^s 05	2 ^s 0
June 9	60 ^s 83 ^s	70 ^s 9 ^s	29 ^s 65 ^s	88 ^s 0 ^s	5 ^s 57 ^s	55 ^s 4 ^s
19	60 ^s 74 ^s	72 ^s 7 ^s	29 ^s 49 ^s	89 ^s 7 ^s	5 ^s 49 ^s	57 ^s 2 ^s
29	60 ^s 62 ^s	74 ^s 2 ^s	29 ^s 29 ^s	91 ^s 0 ^s	5 ^s 39 ^s	58 ^s 7 ^s
July 9	60 ^s 48 ^s	75 ^s 4 ^s	29 ^s 04 ^s	91 ^s 9 ^s	5 ^s 26 ^s	60 ^s 0 ^s
	0 ^s 16	0 ^s 9	0 ^s 30	0 ^s 5	0 ^s 14	1 ^s 0
19	60 ^s 32 ^s	76 ^s 3 ^s	28 ^s 74 ^s	92 ^s 4 ^s	5 ^s 12 ^s	61 ^s 0 ^s
29	60 ^s 15 ^s	76 ^s 8 ^s	28 ^s 42 ^s	92 ^s 5 ^s	4 ^s 95 ^s	61 ^s 6 ^s
Aug. 8	59 ^s 97 ^s	77 ^s 0 ^s	28 ^s 08 ^s	92 ^s 2 ^s	4 ^s 78 ^s	61 ^s 9 ^s
18	59 ^s 79 ^s	76 ^s 8 ^s	27 ^s 73 ^s	91 ^s 4 ^s	4 ^s 60 ^s	61 ^s 9 ^s
	0 ^s 18	0 ^s 6	0 ^s 34	1 ^s 2	0 ^s 17	0 ^s 4
28	59 ^s 61 ^s	76 ^s 2 ^s	27 ^s 39 ^s	90 ^s 2 ^s	4 ^s 43 ^s	61 ^s 5 ^s
Sept. 7	59 ^s 44 ^s	75 ^s 2 ^s	27 ^s 08 ^s	88 ^s 6 ^s	4 ^s 26 ^s	60 ^s 7 ^s
17	59 ^s 29 ^s	73 ^s 9 ^s	26 ^s 80 ^s	86 ^s 6 ^s	4 ^s 11 ^s	59 ^s 6 ^s
27	59 ^s 17 ^s	72 ^s 3 ^s	26 ^s 58 ^s	84 ^s 4 ^s	3 ^s 98 ^s	58 ^s 1 ^s
	0 ^s 08	2 ^s 0	0 ^s 15	2 ^s 3	0 ^s 09	1 ^s 7
Oct. 7	59 ^s 09 ^s	70 ^s 3 ^s	26 ^s 43 ^s	82 ^s 1 ^s	3 ^s 89 ^s	56 ^s 4 ^s
17	59 ^s 04 ^s	68 ^s 0 ^s	26 ^s 36 ^s	79 ^s 6 ^s	3 ^s 83 ^s	54 ^s 3 ^s
27	59 ^s 04 ^s	65 ^s 4 ^s	26 ^s 38 ^s	77 ^s 2 ^s	3 ^s 82 ^s	51 ^s 9 ^s
Nov. 6	59 ^s 11 ^s	62 ^s 4 ^s	26 ^s 50 ^s	74 ^s 6 ^s	3 ^s 87 ^s	49 ^s 0 ^s
	0 ^s 11	3 ^s 0	0 ^s 21	2 ^s 1	0 ^s 10	2 ^s 8
16	59 ^s 22 ^s	59 ^s 4 ^s	26 ^s 71 ^s	72 ^s 5 ^s	3 ^s 97 ^s	46 ^s 2 ^s
26	59 ^s 39 ^s	56 ^s 4 ^s	27 ^s 01 ^s	70 ^s 7 ^s	4 ^s 12 ^s	43 ^s 3 ^s
Dec. 6	59 ^s 60 ^s	53 ^s 4 ^s	27 ^s 39 ^s	69 ^s 2 ^s	4 ^s 32 ^s	40 ^s 4 ^s
16	59 ^s 86 ^s	50 ^s 5 ^s	27 ^s 84 ^s	68 ^s 2 ^s	4 ^s 57 ^s	37 ^s 6 ^s
	0 ^s 30	2 ^s 8	0 ^s 50	0 ^s 5	0 ^s 28	2 ^s 8
26	60 ^s 16 ^s	47 ^s 7 ^s	28 ^s 34 ^s	67 ^s 7 ^s	4 ^s 85 ^s	34 ^s 8 ^s
36	60 ^s 48 ^s	45 ^s 3 ^s	28 ^s 88 ^s	67 ^s 7 ^s	5 ^s 16 ^s	32 ^s 3 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Libræ.		β Ursæ Minoris.		ψ Bootis.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 14 ^m 43	[°] 15 ['] 28	^h 14 ^m 51	[°] 74 ['] 42	^h 14 ^m 58	[°] 27 ['] 28
Jan. 1	^s 21.86 ^s	["] 25.9 ["]	^s 4.50 ^s	["] 22.3 ["]	^s 36.92 ^s	["] 37.8 ["]
11	22.18 0.32	27.4 1.5	5.27 0.77	20.0 2.3	37.23 0.31	35.4 2.4
21	22.51 0.33	20.0 1.6	6.11 0.84	18.4 1.6	37.56 0.33	33.3 2.1
31	22.84 0.33	30.6 1.6	6.98 0.87	17.4 1.0	37.89 0.33	31.7 1.6
	0.32	1.5	0.88	0.4	0.33	1.2
Feb. 10	23.16 0.30	32.1 1.5	7.86 0.87	17.0 0.3	38.22 0.31	30.5 0.7
20	23.46 0.27	33.6 1.3	8.73 0.81	17.3 1.0	38.53 0.29	29.8 0.2
Mar. 1	23.73 0.26	34.9 1.1	9.54 0.73	18.3 1.7	38.82 0.27	29.6 0.4
11	23.99 0.22	36.0 1.0	10.27 0.63	20.0 2.1	39.09 0.24	30.0 0.8
21	24.21 0.20	37.0 0.8	10.90 0.51	22.1 2.6	39.33 0.20	30.8 1.3
31	24.41 0.16	37.8 0.7	11.41 0.37	24.7 2.9	39.53 0.17	32.1 1.6
Apr. 10	24.57 0.13	38.5 0.4	11.78 0.23	27.6 3.1	39.70 0.14	33.7 1.9
20	24.70 0.11	38.9 0.3	12.01 0.08	30.7 3.3	39.84 0.10	35.6 2.1
30	24.81 0.08	39.2 0.2	12.09 0.06	34.0 3.2	39.94 0.06	37.7 2.2
May 10	24.89 0.05	39.4 0.0	12.03 0.19	37.2 3.1	40.00 0.04	39.9 2.2
20	24.94 0.02	39.4 0.1	11.84 0.32	40.3 2.9	40.04 0.00	42.1 2.2
30	24.96 0.00	39.3 0.1	11.52 0.44	43.2 2.6	40.04 0.04	44.3 2.1
June 9	24.96 0.04	39.2 0.3	11.08 0.54	45.8 2.2	40.00 0.06	46.4 1.9
19	24.92 0.06	38.9 0.3	10.54 0.63	48.0 1.8	39.94 0.09	48.3 1.7
29	24.86 0.08	38.6 0.4	9.91 0.70	49.8 1.3	39.85 0.12	50.0 1.4
July 9	24.78 0.11	38.2 0.4	9.21 0.75	51.1 0.8	39.73 0.14	51.4 1.1
19	24.67 0.13	37.8 0.5	8.46 0.79	51.9 0.3	39.59 0.16	52.5 0.8
29	24.54 0.14	37.3 0.6	7.67 0.81	52.2 0.3	39.43 0.18	53.3 0.5
Aug. 8	24.40 0.15	36.7 0.6	6.86 0.80	51.9 0.8	39.25 0.18	53.8 0.1
18	24.25 0.15	36.1 0.6	6.06 0.79	51.1 1.3	39.07 0.19	53.9 0.3
28	24.10 0.14	35.5 0.6	5.27 0.75	49.8 1.8	38.88 0.18	53.6 0.6
Sept. 7	23.96 0.12	34.9 0.5	4.52 0.69	48.0 2.3	38.70 0.16	53.0 1.0
17	23.84 0.11	34.4 0.5	3.83 0.62	45.7 2.6	38.54 0.15	52.0 1.3
27	23.73 0.07	33.9 0.4	3.21 0.52	43.1 3.0	38.39 0.11	50.7 1.7
Oct. 7	23.66 0.03	33.5 0.3	2.69 0.41	40.1 3.4	38.28 0.07	49.0 2.0
17	23.63 0.02	33.2 0.0	2.28 0.27	36.7 3.5	38.21 0.04	47.0 2.2
27	23.65 0.07	33.2 0.2	2.01 0.13	33.2 3.8	38.17 0.01	44.8 2.6
Nov. 6	23.72 0.12	33.4 0.4	{1.88} 0.03	{32.1} 3.8	38.18 0.09	42.2 3.0
16	23.84 0.17	33.8 0.6	1.89 0.18	25.3 3.8	38.27 0.13	39.2 2.9
26	24.01 0.21	34.4 0.9	2.07 0.33	21.5 3.6	38.40 0.18	36.3 2.9
Dec. 6	24.22 0.26	35.3 1.1	2.40 0.48	17.9 3.3	38.58 0.23	33.4 2.9
16	24.48 0.29	36.4 1.3	2.88 0.61	14.6 3.0	38.81 0.27	30.5 2.8
26	24.77 0.31	37.7 1.5	3.49 0.71	11.6 2.5	39.08 0.30	27.7 2.6
36	25.08 0.31	39.2 1.5	4.20 0.71	9.1 2.5	39.38 0.30	25.1 2.6

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Libræ.		α Coronæ Borealis.		α Serpentis.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 15 ^m 9	[°] 8 ['] 52	^h 15 ^m 28	[°] 27 ['] 10	^h 15 ^m 37	[°] 6 ['] 51
Jan. 1	41 ^s .62 ^s 0 ^s .30	42 ^s .6 ^s 1 ^s .6	55 ^s .38 ^s 0 ^s .29	20 ^s .2 ^s 2 ^s .5	34 ^s .07 ^s 0 ^s .28	18 ^s .7 ^s 2 ^s .0
11	41 ^s .92 ^s 0 ^s .32	44 ^s .2 ^s 1 ^s .6	55 ^s .67 ^s 0 ^s .31	17 ^s .7 ^s 2 ^s .2	34 ^s .35 ^s 0 ^s .29	16 ^s .7 ^s 1 ^s .9
21	42 ^s .24 ^s 0 ^s .32	45 ^s .8 ^s 1 ^s .5	55 ^s .98 ^s 0 ^s .33	15 ^s .5 ^s 1 ^s .8	34 ^s .64 ^s 0 ^s .30	14 ^s .8 ^s 1 ^s .6
31	42 ^s .56 ^s 0 ^s .31	47 ^s .3 ^s 1 ^s .4	56 ^s .31 ^s 0 ^s .32	13 ^s .7 ^s 1 ^s .4	34 ^s .94 ^s 0 ^s .31	13 ^s .2 ^s 1 ^s .4
Feb. 10	42 ^s .87 ^s 0 ^s .30	48 ^s .7 ^s 1 ^s .3	56 ^s .63 ^s 0 ^s .32	12 ^s .3 ^s 0 ^s .9	35 ^s .25 ^s 0 ^s .30	11 ^s .8 ^s 1 ^s .1
20	43 ^s .17 ^s 0 ^s .29	50 ^s .0 ^s 1 ^s .1	56 ^s .95 ^s 0 ^s .30	11 ^s .4 ^s 0 ^s .3	35 ^s .55 ^s 0 ^s .29	10 ^s .7 ^s 0 ^s .8
Mar. 1	43 ^s .46 ^s 0 ^s .26	51 ^s .1 ^s 0 ^s .8	57 ^s .25 ^s 0 ^s .29	11 ^s .1 ^s 0 ^s .2	35 ^s .84 ^s 0 ^s .27	9 ^s .9 ^s 0 ^s .3
11	43 ^s .72 ^s 0 ^s .24	51 ^s .9 ^s 0 ^s .6	57 ^s .54 ^s 0 ^s .26	11 ^s .3 ^s 0 ^s .7	36 ^s .11 ^s 0 ^s .25	9 ^s .6 ^s 0 ^s .0
21	43 ^s .96 ^s 0 ^s .21	52 ^s .5 ^s 0 ^s .4	57 ^s .80 ^s 0 ^s .23	12 ^s .0 ^s 1 ^s .1	36 ^s .36 ^s 0 ^s .22	9 ^s .6 ^s 0 ^s .3
31	44 ^s .17 ^s 0 ^s .18	52 ^s .9 ^s 0 ^s .2	58 ^s .03 ^s 0 ^s .20	13 ^s .1 ^s 1 ^s .5	36 ^s .58 ^s 0 ^s .20	9 ^s .9 ^s 0 ^s .7
Apr. 10	44 ^s .35 ^s 0 ^s .16	53 ^s .1 ^s 0 ^s .0	58 ^s .23 ^s 0 ^s .16	14 ^s .6 ^s 1 ^s .9	36 ^s .78 ^s 0 ^s .17	10 ^s .6 ^s 0 ^s .9
20	44 ^s .51 ^s 0 ^s .12	53 ^s .1 ^s 0 ^s .2	58 ^s .39 ^s 0 ^s .13	16 ^s .5 ^s 2 ^s .1	36 ^s .95 ^s 0 ^s .15	11 ^s .5 ^s 1 ^s .1
30	44 ^s .63 ^s 0 ^s .10	52 ^s .9 ^s 0 ^s .3	58 ^s .52 ^s 0 ^s .10	18 ^s .6 ^s 2 ^s .2	37 ^s .10 ^s 0 ^s .11	12 ^s .6 ^s 1 ^s .2
May 10	44 ^s .73 ^s 0 ^s .07	52 ^s .6 ^s 0 ^s .4	58 ^s .62 ^s 0 ^s .07	20 ^s .8 ^s 2 ^s .3	37 ^s .21 ^s 0 ^s .09	13 ^s .8 ^s 1 ^s .4
20	44 ^s .80 ^s 0 ^s .05	52 ^s .2 ^s 0 ^s .4	58 ^s .69 ^s 0 ^s .03	23 ^s .1 ^s 2 ^s .3	37 ^s .30 ^s 0 ^s .06	15 ^s .2 ^s 1 ^s .4
30	44 ^s .85 ^s 0 ^s .01	51 ^s .8 ^s 0 ^s .6	58 ^s .72 ^s 0 ^s .01	25 ^s .4 ^s 2 ^s .2	37 ^s .36 ^s 0 ^s .02	16 ^s .6 ^s 1 ^s .4
June 9	44 ^s .86 ^s 0 ^s .02	51 ^s .2 ^s 0 ^s .5	58 ^s .71 ^s 0 ^s .04	27 ^s .6 ^s 2 ^s .1	37 ^s .38 ^s 0 ^s .00	18 ^s .0 ^s 1 ^s .4
19	44 ^s .84 ^s 0 ^s .04	50 ^s .7 ^s 0 ^s .6	58 ^s .67 ^s 0 ^s .07	29 ^s .7 ^s 1 ^s .9	37 ^s .38 ^s 0 ^s .03	19 ^s .4 ^s 1 ^s .2
29	44 ^s .80 ^s 0 ^s .07	50 ^s .1 ^s 0 ^s .6	58 ^s .60 ^s 0 ^s .10	31 ^s .6 ^s 1 ^s .7	37 ^s .35 ^s 0 ^s .07	20 ^s .6 ^s 1 ^s .2
July 9	44 ^s .73 ^s 0 ^s .10	49 ^s .5 ^s 0 ^s .6	58 ^s .50 ^s 0 ^s .13	33 ^s .3 ^s 1 ^s .3	37 ^s .28 ^s 0 ^s .09	21 ^s .8 ^s 1 ^s .0
19	44 ^s .63 ^s 0 ^s .12	48 ^s .9 ^s 0 ^s .5	58 ^s .37 ^s 0 ^s .16	34 ^s .6 ^s 1 ^s .0	37 ^s .19 ^s 0 ^s .12	22 ^s .8 ^s 0 ^s .9
29	44 ^s .51 ^s 0 ^s .13	48 ^s .4 ^s 0 ^s .5	58 ^s .21 ^s 0 ^s .17	35 ^s .6 ^s 0 ^s .7	37 ^s .07 ^s 0 ^s .13	23 ^s .7 ^s 0 ^s .6
Aug. 8	44 ^s .38 ^s 0 ^s .15	47 ^s .9 ^s 0 ^s .5	58 ^s .04 ^s 0 ^s .18	36 ^s .3 ^s 0 ^s .3	36 ^s .94 ^s 0 ^s .16	24 ^s .3 ^s 0 ^s .5
18	44 ^s .23 ^s 0 ^s .15	47 ^s .4 ^s 0 ^s .5	57 ^s .86 ^s 0 ^s .20	36 ^s .6 ^s 0 ^s .0	36 ^s .78 ^s 0 ^s .16	24 ^s .8 ^s 0 ^s .3
28	44 ^s .08 ^s 0 ^s .15	46 ^s .9 ^s 0 ^s .4	57 ^s .66 ^s 0 ^s .19	36 ^s .6 ^s 0 ^s .4	36 ^s .62 ^s 0 ^s .16	25 ^s .1 ^s 0 ^s .1
Sept. 7	43 ^s .93 ^s 0 ^s .14	46 ^s .5 ^s 0 ^s .2	57 ^s .47 ^s 0 ^s .19	36 ^s .2 ^s 0 ^s .7	36 ^s .46 ^s 0 ^s .16	25 ^s .2 ^s 0 ^s .2
17	43 ^s .79 ^s 0 ^s .13	46 ^s .3 ^s 0 ^s .2	57 ^s .28 ^s 0 ^s .16	35 ^s .5 ^s 1 ^s .2	36 ^s .30 ^s 0 ^s .14	25 ^s .0 ^s 0 ^s .4
27	43 ^s .66 ^s 0 ^s .09	46 ^s .1 ^s 0 ^s .1	57 ^s .12 ^s 0 ^s .14	34 ^s .3 ^s 1 ^s .5	36 ^s .16 ^s 0 ^s .12	24 ^s .6 ^s 0 ^s .6
Oct. 7	43 ^s .57 ^s 0 ^s .06	46 ^s .0 ^s 0 ^s .1	56 ^s .98 ^s 0 ^s .11	32 ^s .8 ^s 1 ^s .8	36 ^s .04 ^s 0 ^s .09	24 ^s .0 ^s 0 ^s .9
17	43 ^s .51 ^s 0 ^s .01	46 ^s .1 ^s 0 ^s .3	56 ^s .87 ^s 0 ^s .06	31 ^s .0 ^s 2 ^s .1	35 ^s .95 ^s 0 ^s .04	23 ^s .1 ^s 1 ^s .1
27	43 ^s .50 ^s 0 ^s .04	46 ^s .4 ^s 0 ^s .5	56 ^s .81 ^s 0 ^s .01	28 ^s .9 ^s 2 ^s .4	35 ^s .91 ^s 0 ^s .00	22 ^s .0 ^s 1 ^s .3
Nov. 6	43 ^s .54 ^s 0 ^s .09	46 ^s .9 ^s 0 ^s .8	56 ^s .80 ^s 0 ^s .04	26 ^s .5 ^s 2 ^s .7	35 ^s .91 ^s 0 ^s .05	20 ^s .7 ^s 1 ^s .6
16	43 ^s .63 ^s 0 ^s .14	47 ^s .7 ^s 1 ^s .0	{56 ^s .84} 0 ^s .10	{53 ^s .8} 2 ^s .9	35 ^s .96 ^s 0 ^s .10	19 ^s .1 ^s 2 ^s .0
26	43 ^s .77 ^s 0 ^s .19	48 ^s .7 ^s 1 ^s .2	56 ^s .94 ^s 0 ^s .15	20 ^s .7 ^s 2 ^s .9	36 ^s .06 ^s 0 ^s .14	17 ^s .1 ^s 1 ^s .9
Dec. 6	43 ^s .96 ^s 0 ^s .22	49 ^s .9 ^s 1 ^s .3	57 ^s .09 ^s 0 ^s .20	17 ^s .8 ^s 2 ^s .9	36 ^s .20 ^s 0 ^s .20	15 ^s .2 ^s 2 ^s .1
16	44 ^s .18 ^s 0 ^s .26	51 ^s .2 ^s 1 ^s .5	57 ^s .29 ^s 0 ^s .24	14 ^s .9 ^s 2 ^s .8	36 ^s .40 ^s 0 ^s .24	13 ^s .1 ^s 2 ^s .1
26	44 ^s .44 ^s 0 ^s .30	52 ^s .7 ^s 1 ^s .5	57 ^s .53 ^s 0 ^s .27	12 ^s .1 ^s 2 ^s .7	36 ^s .64 ^s 0 ^s .26	11 ^s .0 ^s 2 ^s .1
36	44 ^s .74 ^s 0 ^s .30	54 ^s .2 ^s 1 ^s .5	57 ^s .80 ^s 0 ^s .27	9 ^s .4 ^s 2 ^s .7	36 ^s .90 ^s 0 ^s .26	8 ^s .9 ^s 2 ^s .1

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Ursæ Minoris.		β ^r Scorpii.		δ Ophiuchi.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 15 ^m 48	^o 78 ['] 12	^h 15 ^m 57	^o 19 ['] 25	^h 16 ^m 7	^o 3 ['] 20
Jan. 1	52° 78' 0.78	28° 2' 2.7	31° 96' 0.29	44° 1' 0.9	13° 05' 0.27	28° 2' 1.6
11	53° 56' 0.93	25° 5' 2.2	32° 25' 0.31	45° 0' 1.1	13° 32' 0.29	29° 8' 1.5
21	54° 49' 1.02	23° 3' 1.7	32° 56' 0.33	46° 1' 1.1	13° 61' 0.29	31° 3' 1.5
31	55° 51' 1.08	21° 6' 1.0	32° 89' 0.32	47° 2' 1.1	13° 90' 0.31	32° 8' 1.2
Feb. 10	56° 59' 1.11	20° 6' 0.4	33° 21' 0.33	48° 3' 1.0	14° 21' 0.30	34° 0' 1.1
20	57° 70' 1.09	20° 2' 0.2	33° 54' 0.31	49° 3' 1.0	14° 51' 0.29	35° 1' 0.9
Mar. 1	58° 79' 1.04	20° 4' 1.0	33° 85' 0.30	50° 3' 0.8	14° 80' 0.29	36° 0' 0.5
11	59° 83' 0.96	21° 4' 1.6	34° 15' 0.28	51° 1' 0.8	15° 09' 0.26	36° 5' 0.3
21	60° 79' 0.84	23° 0' 2.1	34° 43' 0.25	51° 9' 0.6	15° 35' 0.25	36° 8' 0.0
31	61° 63' 0.69	25° 1' 2.5	34° 68' 0.24	52° 5' 0.6	15° 60' 0.22	36° 8' 0.2
Apr. 10	62° 32' 0.52	27° 6' 2.9	34° 92' 0.21	53° 1' 0.3	15° 82' 0.21	36° 6' 0.4
20	62° 84' 0.34	30° 5' 3.2	35° 13' 0.18	53° 4' 0.3	16° 03' 0.17	36° 2' 0.7
30	63° 18' 0.16	33° 7' 3.2	35° 31' 0.16	53° 7' 0.1	16° 20' 0.15	35° 5' 0.8
May 10	63° 34' 0.02	36° 9' 3.2	35° 47' 0.13	53° 8' 0.1	16° 35' 0.13	34° 7' 0.8
20	63° 32' 0.21	40° 2' 3.2	35° 60' 0.09	53° 9' 0.1	16° 48' 0.09	33° 9' 1.0
30	63° 11' 0.39	43° 4' 3.0	35° 69' 0.06	54° 0' 0.0	16° 57' 0.06	32° 9' 0.9
June 9	62° 72' 0.54	46° 4' 2.7	35° 75' 0.03	54° 0' 0.1	16° 63' 0.02	32° 0' 1.0
19	62° 18' 0.69	49° 1' 2.4	35° 78' 0.01	53° 9' 0.1	16° 65' 0.00	31° 0' 0.9
29	61° 49' 0.82	51° 5' 2.0	35° 77' 0.04	53° 8' 0.2	16° 65' 0.04	30° 1' 0.8
July 9	60° 67' 0.92	53° 5' 1.6	35° 73' 0.08	53° 6' 0.2	16° 61' 0.07	29° 3' 0.8
19	59° 75' 1.01	55° 1' 1.0	35° 65' 0.11	53° 4' 0.2	16° 54' 0.10	28° 5' 0.7
29	58° 74' 1.07	56° 1' 0.6	35° 54' 0.13	53° 2' 0.3	16° 44' 0.13	27° 8' 0.6
Aug. 8	57° 67' 1.11	56° 7' 0.0	35° 41' 0.15	52° 9' 0.4	16° 31' 0.14	27° 2' 0.5
18	56° 56' 1.13	56° 7' 0.5	35° 26' 0.17	52° 5' 0.4	16° 17' 0.16	26° 7' 0.4
28	55° 43' 1.11	56° 2' 1.0	35° 09' 0.17	52° 1' 0.4	16° 01' 0.17	26° 3' 0.2
Sept. 7	54° 32' 1.07	55° 2' 1.5	34° 92' 0.17	51° 7' 0.5	15° 84' 0.17	26° 1' 0.1
17	53° 25' 1.01	53° 7' 2.0	34° 75' 0.16	51° 2' 0.5	15° 67' 0.15	26° 0' 0.1
27	52° 24' 0.91	51° 7' 2.3	34° 59' 0.12	50° 7' 0.4	15° 52' 0.13	25° 9' 0.1
Oct. 7	51° 33' 0.80	49° 4' 2.8	34° 47' 0.10	50° 3' 0.4	15° 39' 0.11	26° 0' 0.3
17	50° 53' 0.65	46° 6' 3.2	34° 37' 0.06	49° 9' 0.4	15° 28' 0.06	26° 3' 0.5
27	49° 88' 0.48	43° 4' 3.4	34° 31' 0.01	49° 5' 0.1	15° 22' 0.02	26° 8' 0.8
Nov. 6	49° 40' 0.30	40° 0' 3.6	34° 30' 0.05	49° 4' 0.0	15° 20' 0.02	27° 6' 1.0
16	49° 10' 0.11	36° 4' 4.0	34° 35' 0.10	49° 4' 0.1	15° 22' 0.08	28° 6' 1.3
26	48° 99' 0.12	32° 4' 3.7	34° 45' 0.15	49° 5' 0.4	15° 30' 0.13	29° 9' 1.2
Dec. 6	49° 11' 0.32	28° 7' 3.5	34° 60' 0.20	49° 9' 0.5	15° 43' 0.17	31° 1' 1.5
16	49° 43' 0.52	25° 2' 3.4	34° 80' 0.24	50° 4' 0.8	15° 60' 0.22	32° 6' 1.6
26	49° 95' 0.69	21° 8' 3.0	35° 04' 0.27	51° 2' 0.8	15° 82' 0.25	34° 2' 1.6
36	50° 64' 0.92	18° 8' 3.0	35° 31' 0.31	52° 0' 0.8	16° 07' 0.25	35° 8' 1.6

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Scorpii. (Antares)		η Draconis.		α Trianguli Australis.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 16 ^m 21	[°] 26 ['] 7	^h 16 ^m 22	[°] 61 ['] 49	^h 16 ^m 34	[°] 68 ['] 46
Jan. 1	4 ^s 27 ^s 0 ^s 29	30 ^s 8 ^s 0 ^s 5	7 ^s 49 ^s 0 ^s 35	14 ^s 0 ^s 0 ^s 0	16 ^s 93 ^s 0 ^s 60	7 ^s 2 ^s 0 ^s 0
11	4 ^s 56 ^s 0 ^s 31	31 ^s 3 ^s 0 ^s 6	7 ^s 84 ^s 0 ^s 41	10 ^s 8 ^s 3 ^s 2	17 ^s 53 ^s 0 ^s 67	5 ^s 6 ^s 1 ^s 6
21	4 ^s 87 ^s 0 ^s 33	31 ^s 9 ^s 0 ^s 7	8 ^s 25 ^s 0 ^s 46	8 ^s 1 ^s 2 ^s 7	18 ^s 20 ^s 0 ^s 71	4 ^s 3 ^s 1 ^s 3
31	5 ^s 20 ^s 0 ^s 34	32 ^s 6 ^s 0 ^s 7	8 ^s 71 ^s 0 ^s 50	5 ^s 9 ^s 2 ^s 2	18 ^s 91 ^s 0 ^s 75	3 ^s 5 ^s 0 ^s 8
Feb. 10	5 ^s 54 ^s 0 ^s 34	33 ^s 3 ^s 0 ^s 9	9 ^s 21 ^s 0 ^s 51	4 ^s 2 ^s 1 ^s 0	19 ^s 66 ^s 0 ^s 77	3 ^s 1 ^s 0 ^s 0
20	5 ^s 88 ^s 0 ^s 33	34 ^s 2 ^s 0 ^s 8	9 ^s 72 ^s 0 ^s 52	3 ^s 2 ^s 0 ^s 3	20 ^s 43 ^s 0 ^s 77	3 ^s 1 ^s 0 ^s 4
Mar. 1	6 ^s 21 ^s 0 ^s 32	35 ^s 0 ^s 0 ^s 8	10 ^s 24 ^s 0 ^s 50	2 ^s 9 ^s 0 ^s 4	21 ^s 20 ^s 0 ^s 75	3 ^s 5 ^s 0 ^s 8
11	6 ^s 53 ^s 0 ^s 31	35 ^s 8 ^s 0 ^s 7	10 ^s 74 ^s 0 ^s 48	3 ^s 3 ^s 0 ^s 4	21 ^s 95 ^s 0 ^s 72	4 ^s 3 ^s 1 ^s 2
21	6 ^s 84 ^s 0 ^s 28	36 ^s 5 ^s 0 ^s 7	11 ^s 22 ^s 0 ^s 43	4 ^s 3 ^s 1 ^s 6	22 ^s 67 ^s 0 ^s 69	5 ^s 5 ^s 1 ^s 5
31	7 ^s 12 ^s 0 ^s 27	37 ^s 2 ^s 0 ^s 6	11 ^s 65 ^s 0 ^s 39	5 ^s 9 ^s 2 ^s 2	23 ^s 36 ^s 0 ^s 63	7 ^s 0 ^s 1 ^s 7
Apr. 10	7 ^s 39 ^s 0 ^s 24	37 ^s 8 ^s 0 ^s 6	12 ^s 04 ^s 0 ^s 32	8 ^s 1 ^s 2 ^s 6	23 ^s 99 ^s 0 ^s 58	8 ^s 7 ^s 2 ^s 0
20	7 ^s 63 ^s 0 ^s 22	38 ^s 4 ^s 0 ^s 5	12 ^s 36 ^s 0 ^s 26	10 ^s 7 ^s 2 ^s 9	24 ^s 57 ^s 0 ^s 51	10 ^s 7 ^s 2 ^s 3
May 30	7 ^s 85 ^s 0 ^s 18	38 ^s 9 ^s 0 ^s 5	12 ^s 62 ^s 0 ^s 18	13 ^s 6 ^s 3 ^s 2	25 ^s 08 ^s 0 ^s 43	13 ^s 0 ^s 2 ^s 4
10	8 ^s 03 ^s 0 ^s 16	39 ^s 4 ^s 0 ^s 4	12 ^s 80 ^s 0 ^s 11	16 ^s 8 ^s 3 ^s 3	25 ^s 51 ^s 0 ^s 35	15 ^s 4 ^s 2 ^s 5
20	8 ^s 19 ^s 0 ^s 13	39 ^s 8 ^s 0 ^s 3	12 ^s 91 ^s 0 ^s 03	20 ^s 1 ^s 3 ^s 3	25 ^s 86 ^s 0 ^s 26	17 ^s 9 ^s 2 ^s 5
30	8 ^s 32 ^s 0 ^s 09	40 ^s 1 ^s 0 ^s 4	12 ^s 94 ^s 0 ^s 04	23 ^s 4 ^s 3 ^s 2	26 ^s 12 ^s 0 ^s 17	20 ^s 4 ^s 2 ^s 5
June 9	8 ^s 41 ^s 0 ^s 05	40 ^s 5 ^s 0 ^s 3	12 ^s 90 ^s 0 ^s 11	26 ^s 6 ^s 3 ^s 1	26 ^s 29 ^s 0 ^s 06	22 ^s 9 ^s 2 ^s 5
19	8 ^s 46 ^s 0 ^s 01	40 ^s 8 ^s 0 ^s 2	12 ^s 79 ^s 0 ^s 18	29 ^s 7 ^s 2 ^s 8	26 ^s 35 ^s 0 ^s 03	25 ^s 4 ^s 2 ^s 4
29	8 ^s 47 ^s 0 ^s 03	41 ^s 0 ^s 0 ^s 2	12 ^s 61 ^s 0 ^s 25	32 ^s 5 ^s 2 ^s 5	26 ^s 32 ^s 0 ^s 13	27 ^s 8 ^s 2 ^s 1
July 9	8 ^s 44 ^s 0 ^s 06	41 ^s 2 ^s 0 ^s 1	12 ^s 36 ^s 0 ^s 31	35 ^s 0 ^s 2 ^s 1	26 ^s 19 ^s 0 ^s 23	29 ^s 9 ^s 1 ^s 9
19	8 ^s 38 ^s 0 ^s 10	41 ^s 3 ^s 0 ^s 0	12 ^s 05 ^s 0 ^s 36	37 ^s 1 ^s 1 ^s 7	25 ^s 96 ^s 0 ^s 31	31 ^s 8 ^s 1 ^s 6
29	8 ^s 28 ^s 0 ^s 13	41 ^s 3 ^s 0 ^s 1	11 ^s 69 ^s 0 ^s 40	38 ^s 8 ^s 1 ^s 2	25 ^s 65 ^s 0 ^s 39	33 ^s 4 ^s 1 ^s 2
Aug. 8	8 ^s 15 ^s 0 ^s 16	41 ^s 2 ^s 0 ^s 1	11 ^s 29 ^s 0 ^s 43	40 ^s 0 ^s 0 ^s 7	25 ^s 26 ^s 0 ^s 45	34 ^s 6 ^s 0 ^s 7
18	7 ^s 99 ^s 0 ^s 18	41 ^s 1 ^s 0 ^s 3	10 ^s 86 ^s 0 ^s 45	40 ^s 7 ^s 0 ^s 2	24 ^s 81 ^s 0 ^s 50	35 ^s 3 ^s 0 ^s 3
28	7 ^s 81 ^s 0 ^s 18	40 ^s 8 ^s 0 ^s 4	10 ^s 41 ^s 0 ^s 46	40 ^s 9 ^s 0 ^s 3	24 ^s 31 ^s 0 ^s 52	35 ^s 6 ^s 0 ^s 1
Sept. 7	7 ^s 63 ^s 0 ^s 19	40 ^s 4 ^s 0 ^s 6	9 ^s 95 ^s 0 ^s 46	40 ^s 6 ^s 0 ^s 9	23 ^s 79 ^s 0 ^s 51	35 ^s 5 ^s 0 ^s 7
17	7 ^s 44 ^s 0 ^s 17	39 ^s 4 ^s 0 ^s 6	9 ^s 49 ^s 0 ^s 43	39 ^s 7 ^s 1 ^s 3	23 ^s 28 ^s 0 ^s 49	34 ^s 8 ^s 1 ^s 1
27	7 ^s 27 ^s 0 ^s 15	38 ^s 8 ^s 0 ^s 7	8 ^s 65 ^s 0 ^s 36	38 ^s 4 ^s 1 ^s 9	22 ^s 79 ^s 0 ^s 44	33 ^s 7 ^s 1 ^s 6
Oct. 7	7 ^s 12 ^s 0 ^s 13	38 ^s 1 ^s 0 ^s 6	8 ^s 29 ^s 0 ^s 29	36 ^s 5 ^s 2 ^s 3	22 ^s 35 ^s 0 ^s 37	32 ^s 1 ^s 1 ^s 9
17	6 ^s 99 ^s 0 ^s 08	37 ^s 5 ^s 0 ^s 5	8 ^s 00 ^s 0 ^s 23	34 ^s 2 ^s 1 ^s 7	21 ^s 98 ^s 0 ^s 28	30 ^s 2 ^s 2 ^s 2
27	6 ^s 91 ^s 0 ^s 03	37 ^s 0 ^s 0 ^s 5	7 ^s 77 ^s 0 ^s 14	31 ^s 5 ^s 3 ^s 0	21 ^s 70 ^s 0 ^s 17	28 ^s 0 ^s 2 ^s 5
Nov. 6	6 ^s 88 ^s 0 ^s 02	36 ^s 5 ^s 0 ^s 3	7 ^s 63 ^s 0 ^s 05	28 ^s 5 ^s 3 ^s 4	21 ^s 53 ^s 0 ^s 05	25 ^s 5 ^s 2 ^s 6
16	6 ^s 90 ^s 0 ^s 08	36 ^s 2 ^s 0 ^s 1	7 ^s 58 ^s 0 ^s 04	25 ^s 1 ^s 3 ^s 6	21 ^s 48 ^s 0 ^s 08	22 ^s 9 ^s 2 ^s 7
26	6 ^s 98 ^s 0 ^s 14	36 ^s 1 ^s 0 ^s 0	7 ^s 62 ^s 0 ^s 13	21 ^s 5 ^s 3 ^s 9	21 ^s 56 ^s 0 ^s 22	20 ^s 2 ^s 2 ^s 7
Dec. 6	7 ^s 12 ^s 0 ^s 19	36 ^s 1 ^s 0 ^s 2	7 ^s 75 ^s 0 ^s 23	17 ^s 6 ^s 3 ^s 7	21 ^s 78 ^s 0 ^s 35	17 ^s 5 ^s 2 ^s 4
16	7 ^s 31 ^s 0 ^s 23	36 ^s 3 ^s 0 ^s 4	7 ^s 98 ^s 0 ^s 31	13 ^s 9 ^s 3 ^s 6	22 ^s 13 ^s 0 ^s 45	15 ^s 1 ^s 2 ^s 2
26	7 ^s 54 ^s 0 ^s 27	36 ^s 7 ^s 0 ^s 4	8 ^s 29 ^s 0 ^s 34	10 ^s 3 ^s 3 ^s 4	22 ^s 58 ^s 0 ^s 54	12 ^s 9 ^s 1 ^s 8
36	7 ^s 81 ^s 0 ^s 27	36 ^s 7 ^s 0 ^s 4	8 ^s 29 ^s 0 ^s 34	6 ^s 9 ^s 3 ^s 4	23 ^s 12 ^s 0 ^s 54	11 ^s 1 ^s 1 ^s 8

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Herculis.		κ Ophiuchi.		ε Ursæ Minoris.			
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.		
	^h 16	^m 36	[°] 31	['] 50	^h 16	^m 59	[°] 82	['] 15
Jan. 1	8 ^s .82	60 ^s .6	13 ^s .55	21 ^s .0	49 ^s .89	15 ^s .4		
11	9 ^s .06	57 ^s .8	13 ^s .77	18 ^s .9	50 ^s .58	12 ^s .2		
21	9 ^s .34	55 ^s .2	14 ^s .02	17 ^s .0	51 ^s .54	9 ^s .4		
31	9 ^s .63	53 ^s .0	14 ^s .30	15 ^s .3	52 ^s .75	7 ^s .0		
Feb. 10	^s .32	1 ^s .7	^s .28	1 ^s .5	^s .40	1 ^s .9		
20	9 ^s .95	51 ^s .3	14 ^s .58	13 ^s .8	54 ^s .15	5 ^s .1		
Mar. 1	10 ^s .27	50 ^s .1	14 ^s .88	12 ^s .7	55 ^s .68	3 ^s .8		
11	10 ^s .59	49 ^s .4	15 ^s .17	11 ^s .9	57 ^s .30	3 ^s .2		
21	10 ^s .91	49 ^s .3	15 ^s .46	11 ^s .5	58 ^s .94	3 ^s .2		
31	^s .29	0 ^s .5	^s .27	0 ^s .1	^s .60	0 ^s .7		
Apr. 10	11 ^s .20	49 ^s .8	15 ^s .73	11 ^s .6	60 ^s .54	3 ^s .9		
20	11 ^s .48	50 ^s .7	16 ^s .00	12 ^s .0	62 ^s .04	5 ^s .2		
30	11 ^s .74	52 ^s .2	16 ^s .25	12 ^s .7	63 ^s .39	7 ^s .0		
May 10	11 ^s .98	54 ^s .1	16 ^s .48	13 ^s .8	64 ^s .54	9 ^s .4		
20	^s .20	2 ^s .2	^s .20	1 ^s .3	^s .92	2 ^s .7		
30	12 ^s .18	56 ^s .3	16 ^s .68	15 ^s .1	65 ^s .46	12 ^s .1		
May 10	12 ^s .34	58 ^s .8	16 ^s .86	16 ^s .7	66 ^s .13	15 ^s .1		
20	12 ^s .47	61 ^s .4	17 ^s .02	18 ^s .3	66 ^s .52	18 ^s .3		
30	12 ^s .57	64 ^s .1	17 ^s .14	20 ^s .1	66 ^s .63	21 ^s .6		
June 9	^s .05	2 ^s .7	^s .09	1 ^s .8	^s .18	3 ^s .3		
19	12 ^s .62	66 ^s .8	17 ^s .23	21 ^s .9	66 ^s .45	24 ^s .9		
29	12 ^s .63	69 ^s .4	17 ^s .28	23 ^s .6	66 ^s .00	28 ^s .0		
July 9	12 ^s .60	71 ^s .8	17 ^s .30	25 ^s .2	65 ^s .28	31 ^s .0		
19	12 ^s .53	74 ^s .1	17 ^s .28	26 ^s .8	64 ^s .32	33 ^s .7		
29	^s .10	1 ^s .9	^s .05	1 ^s .3	^s .18	2 ^s .4		
Aug. 8	12 ^s .43	76 ^s .0	17 ^s .23	28 ^s .1	63 ^s .14	36 ^s .1		
18	12 ^s .29	77 ^s .7	17 ^s .14	29 ^s .3	61 ^s .77	38 ^s .0		
28	12 ^s .12	79 ^s .0	17 ^s .02	30 ^s .3	60 ^s .24	39 ^s .6		
Sept. 7	11 ^s .92	79 ^s .9	16 ^s .88	31 ^s .1	58 ^s .58	40 ^s .7		
17	^s .21	0 ^s .5	^s .17	0 ^s .5	^s .75	0 ^s .6		
27	11 ^s .71	80 ^s .4	16 ^s .71	31 ^s .6	56 ^s .83	41 ^s .3		
Oct. 7	11 ^s .49	80 ^s .5	16 ^s .53	31 ^s .9	55 ^s .03	41 ^s .3		
17	11 ^s .27	80 ^s .2	16 ^s .35	32 ^s .0	53 ^s .22	40 ^s .9		
27	11 ^s .05	79 ^s .5	16 ^s .17	31 ^s .8	51 ^s .44	40 ^s .0		
Nov. 6	^s .21	1 ^s .1	^s .16	0 ^s .5	^s .70	1 ^s .3		
16	10 ^s .84	78 ^s .4	16 ^s .01	31 ^s .3	49 ^s .74	38 ^s .7		
26	10 ^s .66	76 ^s .9	15 ^s .86	30 ^s .6	48 ^s .15	36 ^s .8		
Oct. 27	10 ^s .52	75 ^s .0	15 ^s .75	29 ^s .5	46 ^s .72	34 ^s .5		
Nov. 6	10 ^s .42	72 ^s .7	15 ^s .68	28 ^s .3	45 ^s .49	31 ^s .8		
16	^s .04	2 ^s .5	^s .03	1 ^s .5	^s .99	3 ^s .1		
26	10 ^s .38	70 ^s .2	15 ^s .65	26 ^s .8	44 ^s .50	28 ^s .7		
Dec. 6	10 ^s .39	67 ^s .4	15 ^s .68	25 ^s .1	43 ^s .77	25 ^s .5		
16	10 ^s .46	64 ^s .2	15 ^s .76	23 ^s .0	43 ^s .34	22 ^s .0		
26	10 ^s .59	61 ^s .1	15 ^s .88	20 ^s .9	43 ^s .22	18 ^s .1		
36	^s .17	3 ^s .0	^s .16	2 ^s .1	^s .22	3 ^s .5		
46	10 ^s .76	58 ^s .1	16 ^s .04	18 ^s .8	43 ^s .44	14 ^s .6		
56	10 ^s .98	55 ^s .3	16 ^s .25	16 ^s .7	43 ^s .99	11 ^s .3		

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Herculis.			θ Ophiuchi.			β Draconis.		
	R. A.	Dec. North.		R. A.	Dec. South.		R. A.	Dec. North.	
	^h 17	^m 8	^s 14 32	^h 17	^m 13	^s 24 51	^h 17	^m 27	^s 52 23
Jan. 1	26 ²⁵	0 ²¹	53 ²	39 ²⁵	0 ²⁴	29 ²	19 ⁸²	0 ²⁰	70 ⁴
11	26 ⁴⁶	0 ²⁴	51 ⁰	39 ⁴⁹	0 ²⁷	29 ⁴	20 ⁰²	0 ²⁷	67 ⁰
21	26 ⁷⁰	0 ²⁶	48 ⁹	39 ⁷⁶	0 ³⁰	29 ⁷	20 ²⁹	0 ³¹	63 ⁹
31	26 ⁹⁶	0 ²⁸	47 ⁰	40 ⁰⁶	0 ³¹	30 ¹	20 ⁶⁰	0 ³⁵	61 ²
Feb. 10	27 ²⁴	0 ²⁹	45 ⁴	40 ³⁷	0 ³²	30 ⁵	20 ⁹⁵	0 ³⁹	58 ⁹
20	27 ⁵³	0 ²⁹	44 ²	40 ⁶⁹	0 ³³	30 ⁹	21 ³⁴	0 ⁴⁰	57 ²
Mar. 1	27 ⁸²	0 ²⁹	43 ⁴	41 ⁰²	0 ³³	31 ³	21 ⁷⁴	0 ⁴¹	56 ¹
11	28 ¹¹	0 ²⁹	43 ⁰	41 ³⁵	0 ³²	31 ⁷	22 ¹⁵	0 ⁴¹	55 ⁷
21	28 ⁴⁰	0 ²⁷	43 ⁰	41 ⁶⁷	0 ³⁰	32 ⁰	22 ⁵⁶	0 ³⁹	55 ⁹
31	28 ⁶⁷	0 ²⁶	43 ⁵	41 ⁹⁷	0 ³⁰	32 ²	22 ⁹⁵	0 ³⁷	56 ⁷
Apr. 10	28 ⁹³	0 ²⁵	44 ⁴	42 ²⁷	0 ²⁸	32 ⁴	23 ³²	0 ³⁴	58 ²
20	29 ¹⁸	0 ²²	45 ⁶	42 ⁵⁵	0 ²⁵	32 ⁶	23 ⁶⁶	0 ³⁰	60 ²
30	29 ⁴⁰	0 ¹⁹	47 ²	42 ⁸⁰	0 ²⁴	32 ⁷	23 ⁹⁶	0 ²⁶	62 ⁶
May 10	29 ⁵⁹	0 ¹⁷	48 ⁹	43 ⁰⁴	0 ²¹	32 ⁸	24 ²²	0 ²⁰	65 ⁴
20	29 ⁷⁶	0 ¹³	50 ⁹	43 ²⁵	0 ¹⁷	32 ⁹	24 ⁴²	0 ¹⁵	68 ⁵
30	29 ⁸⁹	0 ¹⁰	52 ⁹	43 ⁴²	0 ¹⁴	33 ⁰	24 ⁵⁷	0 ¹⁰	71 ⁸
June 9	29 ⁹⁹	0 ⁰⁷	55 ⁰	43 ⁵⁶	0 ¹⁰	33 ¹	24 ⁶⁷	0 ⁰³	75 ¹
19	30 ⁰⁶	0 ⁰³	57 ⁰	43 ⁶⁶	0 ⁰⁶	33 ²	24 ⁷⁰	0 ⁰³	78 ⁴
29	30 ⁰⁹	0 ⁰¹	58 ⁹	43 ⁷²	0 ⁰²	33 ⁴	24 ⁶⁷	0 ⁰⁹	81 ⁶
July 9	30 ⁰⁸	0 ⁰⁵	60 ⁷	43 ⁷⁴	0 ⁰²	33 ⁵	24 ⁵⁸	0 ¹⁴	84 ⁵
19	30 ⁰³	0 ⁰⁸	62 ⁴	43 ⁷²	0 ⁰⁶	33 ⁷	24 ⁴⁴	0 ¹⁹	87 ²
29	29 ⁹⁵	0 ¹²	63 ⁸	43 ⁶⁶	0 ¹⁰	33 ⁸	24 ²⁵	0 ²⁵	89 ⁶
Aug. 8	29 ⁸³	0 ¹⁴	65 ⁰	43 ⁵⁶	0 ¹⁴	33 ⁸	24 ⁰⁰	0 ²⁸	91 ⁶
18	29 ⁶⁹	0 ¹⁷	65 ⁹	43 ⁴²	0 ¹⁶	33 ⁹	23 ⁷²	0 ³²	93 ²
28	29 ⁵²	0 ¹⁸	66 ⁶	43 ²⁶	0 ¹⁹	33 ⁸	23 ⁴⁰	0 ³⁵	94 ³
Sept. 7	29 ³⁴	0 ²⁰	67 ⁰	43 ⁰⁷	0 ¹⁹	33 ⁷	23 ⁰⁵	0 ³⁵	95 ⁰
17	29 ¹⁴	0 ¹⁹	67 ¹	42 ⁸⁸	0 ¹⁹	33 ⁴	22 ⁷⁰	0 ³⁶	95 ¹
27	28 ⁹⁵	0 ¹⁷	66 ⁸	42 ⁶⁹	0 ¹⁸	33 ²	22 ³⁴	0 ³⁴	94 ⁷
Oct. 7	28 ⁷⁸	0 ¹⁶	66 ³	42 ⁵¹	0 ¹⁵	32 ⁸	22 ⁰⁰	0 ³²	93 ⁸
17	28 ⁶²	0 ¹³	65 ⁵	42 ³⁶	0 ¹²	32 ⁴	21 ⁶⁸	0 ²⁸	92 ⁴
27	28 ⁴⁹	0 ⁰⁹	64 ⁴	42 ²⁴	0 ⁰⁸	32 ⁰	21 ⁴⁰	0 ²⁴	90 ⁶
Nov. 6	28 ⁴⁰	0 ⁰⁵	63 ⁰	42 ¹⁶	0 ⁰⁴	31 ⁶	21 ¹⁶	0 ¹⁸	88 ²
16	28 ³⁵	0 ⁰⁰	61 ³	42 ¹²	0 ⁰²	31 ²	20 ⁹⁸	0 ¹²	85 ⁵
26	28 ³⁵	0 ⁰⁵	59 ⁴	42 ¹⁴	0 ⁰⁷	30 ⁹	20 ⁸⁶	0 ⁰⁴	82 ⁵
Dec. 6	28 ⁴⁰	0 ¹¹	57 ³	42 ²¹	0 ¹⁵	30 ⁷	20 ⁸²	0 ⁰³	79 ²
16	28 ⁵¹	0 ¹⁵	54 ⁹	42 ³⁶	0 ¹⁷	30 ⁶	20 ⁸⁵	0 ¹⁰	75 ⁵
26	28 ⁶⁶	0 ¹⁹	52 ⁶	42 ⁵³	0 ²²	30 ⁶	20 ⁹⁵	0 ¹⁸	71 ⁹
36	28 ⁸⁵	0 ²³	50 ³	42 ⁷⁵	0 ²²	30 ⁸	21 ¹³	0 ¹⁸	68 ⁴

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Ophiuchi.			μ Herculis.		
	R. A.	Dec. North.		R. A.	Dec. North.	
	^h 17	[°] 12		^h 17	[°] 27	
Jan. 1	^m 28 ^s 36 ["] 76	["] 0 19	39 43 9	^m 41 ^s 7 37	["] 0 18	48 9 5
11	36 95	0 22	41 8	7 55	0 21	6 7
21	37 17	0 25	39 7	7 76	0 25	4 1
31	37 42	0 27	37 9	8 01	0 27	1 8
Feb. 10	37 69	0 28	36 3	8 28	0 28	2 0
20	37 97	0 29	35 1	8 56	0 30	59 8
Mar. 1	38 26	0 29	34 3	8 86	0 31	58 2
11	38 55	0 29	33 8	9 17	0 31	57 1
		0 29			0 31	56 6
21	38 84	0 28	33 8	9 48	0 29	0 0
31	39 12	0 27	34 2	9 77	0 29	56 6
Apr. 10	39 39	0 25	35 0	10 06	0 27	57 1
20	39 64	0 23	36 2	10 33	0 25	58 1
		0 21			0 23	1 5
May 30	39 87	0 21	37 6	10 58	0 23	47 59 6
10	40 08	0 19	39 3	10 81	0 19	48 1 5
20	40 27	0 15	41 2	11 00	0 16	1 5
30	40 42	0 13	43 2	11 16	0 13	3 7
June 9	40 55	0 08	45 2	11 29	0 08	6 1
19	40 63	0 05	47 2	11 37	0 04	8 7
29	40 68	0 01	49 1	11 41	0 00	2 7
July 9	40 69	0 02	50 9	11 41	0 04	11 4
		0 07			0 08	14 1
19	40 67	0 07	52 5	11 37	0 08	16 6
29	40 60	0 11	54 0	11 29	0 13	19 1
Aug. 8	40 49	0 13	55 2	11 16	0 15	21 3
18	40 36	0 16	56 2	11 01	0 19	23 3
		0 18			0 21	25 0
28	40 20	0 18	57 0	10 82	0 21	26 4
Sept. 7	40 02	0 19	57 4	10 61	0 22	27 4
17	39 83	0 19	57 6	10 39	0 22	28 1
27	39 64	0 18	57 5	10 17	0 22	28 4
		0 16			0 22	28 3
Oct. 7	39 46	0 16	57 1	9 95	0 20	0 6
17	39 30	0 14	56 4	9 75	0 18	27 7
27	39 16	0 10	55 5	9 57	0 14	26 8
Nov. 6	39 06	0 06	54 2	9 43	0 09	25 5
		0 02			0 05	23 8
16	39 00	0 02	52 7	9 34	0 05	2 0
26	38 98	0 03	51 0	9 29	0 01	21 8
Dec. 6	39 01	0 09	49 0	9 28	0 05	19 5
16	39 10	0 13	46 7	{9 28}	{0 11}	16 9
		0 17				{16 9}
26	39 23	0 17	44 6	9 45	0 15	2 8
36	39 40	0 17	39 42 4	41 9 60	0 15	{16 9}

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	γ Draconis.		σ Octantis.	
	R. A.	Dec. North.	R. A.	Dec. South.
	^h 17	^o 51	^h 17	^o 89
Jan. 1	^m 53 ^s 25 ^{sec} 19 ^{terc} 0.17	30 22.9 3.3	^m 54 ^s 13 ^{sec} 01 ^{terc} 9.36	16 33.3 3.1
11	25.36 0.22	19.6 3.3	22.37 12.21	30.2 2.8
21	25.58 0.28	16.4 2.9	34.58 14.73	27.4 2.5
31	25.86 0.33	13.5 2.5	54 49.31 16.82	24.9 2.1
Feb. 10	26.19 0.35	11.0 1.9	55 6.13 18.43	22.8 1.6
20	26.54 0.38	9.1 1.4	24.56 19.59	21.2 1.1
Mar. 1	26.92 0.40	7.7 0.7	55 44.15 20.29	20.1 0.6
11	27.32 0.41	7.0 0.0	56 4.44 20.49	19.5 0.2
21	27.73 0.39	7.0 0.6	24.93 20.26	19.3 0.3
31	28.12 0.38	7.6 1.2	56 45.19 19.61	19.6 0.8
Apr. 10	28.50 0.36	8.8 1.7	57 4.80 18.53	20.4 1.3
20	28.86 0.32	10.5 2.3	23.33 17.07	21.7 1.7
May 30	29.18 0.29	12.8 2.6	40.40 15.28	23.4 2.0
10	29.47 0.23	15.4 3.0	57 55.68 13.13	25.4 2.4
20	29.70 0.19	18.4 3.2	58 8.81 10.72	27.8 2.6
30	29.89 0.13	21.6 3.3	19.53 8.07	30.4 2.9
June 9	30.02 0.08	24.9 3.4	27.60 5.22	33.3 3.0
19	30.10 0.01	28.3 3.3	32.82 2.27	36.3 3.0
29	30.11 0.05	31.6 3.1	35.09 0.77	39.3 3.0
July 9	30.06 0.10	34.7 2.9	34.32 3.76	42.3 2.9
19	29.96 0.16	37.6 2.6	30.56 6.65	45.2 2.7
29	29.80 0.21	40.2 2.3	23.91 9.35	47.9 2.5
Aug. 8	29.59 0.26	42.5 1.9	14.56 11.72	50.4 2.0
18	29.33 0.30	44.4 1.4	58 2.84 13.72	52.4 1.6
28	29.03 0.33	45.8 0.9	57 49.12 15.28	54.0 1.0
Sept. 7	28.70 0.34	46.7 0.5	33.84 16.26	55.0 0.5
17	28.36 0.35	47.2 0.0	17.58 16.63	55.5 0.1
27	28.01 0.35	47.2 0.5	57 0.95 16.39	55.4 0.7
Oct. 7	27.66 0.32	46.7 1.1	56 44.56 15.49	54.7 1.3
17	27.34 0.30	45.6 1.6	29.07 13.94	53.4 1.8
27	27.04 0.26	44.0 2.0	55.13 11.88	51.6 2.4
Nov. 6	26.78 0.20	42.0 2.4	56 3.25 9.24	49.2 2.7
16	26.58 0.15	39.6 2.9	55 54.01 6.25	46.5 3.0
26	26.43 0.08	36.7 3.1	47.76 2.97	43.5 3.3
Dec. 6	26.35 0.01	33.6 3.3	44.79 0.43	40.2 3.4
16	26.34 0.07	30.3 3.8	45.22 4.46	36.8 3.7
26	26.41 0.13	26.5 3.4	49.68 7.49	33.1 3.2
36	53 26.54 0.13	30 23.1 3.4	55 57.17 7.49	16 29.9 3.2

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	μ Sagittarii.		α Lyrae (Vega)		β Lyrae.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 18 ^m 5	[°] 21 ['] 5	^h 18 ^m 32	[°] 38 ['] 39	^h 18 ^m 45	[°] 33 ['] 12
Jan. 1	37° 36' 18"	22° 2' 0"	18° 88' 12"	37° 3' 0"	2° 53' 10"	29° 3' 0"
11	37° 54' 22"	22° 4' 0"	19° 00' 16"	34° 2' 30"	2° 63' 15"	26° 4' 28"
21	37° 76' 25"	22° 6' 0"	19° 16' 21"	31° 2' 28"	2° 78' 19"	23° 6' 25"
31	38° 01' 27"	22° 8' 0"	19° 37' 24"	28° 4' 24"	2° 97' 22"	21° 1' 24"
Feb. 10	38° 28' 29"	23° 0' 0"	19° 61' 28"	26° 0' 20"	3° 19' 26"	18° 7' 20"
20	38° 57' 30"	23° 1' 0"	19° 89' 30"	24° 0' 15"	3° 45' 28"	16° 7' 14"
Mar. 1	38° 87' 31"	23° 2' 0"	20° 19' 32"	22° 5' 10"	3° 73' 30"	15° 3' 10"
11	39° 18' 32"	23° 2' 0"	20° 51' 33"	21° 5' 03"	4° 03' 31"	14° 3' 05"
21	39° 50' 31"	23° 2' 0"	20° 84' 33"	21° 2' 02"	4° 34' 31"	13° 8' 01"
31	39° 81' 30"	23° 0' 3"	21° 17' 34"	21° 4' 08"	4° 65' 32"	13° 9' 08"
Apr. 10	40° 11' 30"	22° 7' 03"	21° 51' 32"	22° 2' 14"	4° 97' 31"	14° 7' 12"
20	40° 41' 28"	22° 4' 03"	21° 83' 30"	23° 6' 18"	5° 28' 30"	15° 9' 17"
30	40° 69' 27"	22° 1' 04"	22° 13' 29"	25° 4' 23"	5° 58' 28"	17° 6' 21"
May 10	40° 96' 24"	21° 7' 04"	22° 42' 25"	27° 7' 26"	5° 86' 25"	19° 7' 25"
20	41° 20' 22"	21° 3' 04"	22° 67' 22"	30° 3' 29"	6° 11' 23"	22° 2' 27"
30	41° 42' 18"	20° 9' 03"	22° 89' 18"	33° 2' 31"	6° 34' 19"	24° 9' 29"
June 9	41° 60' 15"	20° 6' 02"	23° 07' 13"	36° 3' 31"	6° 53' 15"	27° 8' 30"
19	41° 75' 11"	20° 4' 02"	23° 20' 09"	39° 4' 31"	6° 68' 11"	30° 8' 30"
29	41° 86' 07"	20° 2' 01"	23° 29' 04"	42° 5' 31"	6° 79' 06"	33° 8' 29"
July 9	41° 93' 02"	20° 1' 01"	23° 33' 02"	45° 6' 29"	6° 85' 00"	36° 7' 28"
19	41° 95' 02"	20° 0' 00"	23° 31' 06"	48° 5' 27"	6° 85' 04"	39° 9' 25"
29	41° 93' 06"	20° 0' 00"	23° 25' 11"	51° 2' 24"	6° 81' 08"	42° 0' 24"
Aug. 8	41° 87' 11"	20° 0' 00"	23° 14' 16"	53° 6' 20"	6° 73' 12"	44° 4' 20"
18	41° 76' 14"	20° 0' 01"	22° 98' 19"	55° 6' 17"	6° 61' 17"	46° 4' 17"
28	41° 62' 16"	20° 1' 00"	22° 79' 23"	57° 3' 13"	6° 44' 20"	48° 1' 13"
Sept. 7	41° 46' 18"	20° 1' 00"	22° 56' 25"	58° 6' 09"	6° 24' 21"	49° 4' 09"
17	41° 28' 19"	20° 1' 00"	22° 31' 26"	59° 5' 04"	6° 03' 24"	50° 3' 05"
27	41° 09' 19"	20° 1' 01"	22° 05' 26"	59° 9' 01"	5° 79' 24"	50° 8' 00"
Oct. 7	40° 90' 17"	20° 0' 01"	21° 79' 25"	59° 8' 05"	5° 55' 24"	50° 8' 03"
17	40° 73' 15"	19° 9' 02"	21° 54' 24"	59° 3' 09"	5° 31' 22"	50° 5' 09"
27	40° 58' 12"	19° 7' 01"	21° 30' 21"	58° 4' 15"	5° 09' 19"	49° 6' 12"
Nov. 6	40° 46' 08"	19° 6' 01"	21° 09' 17"	56° 9' 19"	4° 90' 16"	48° 4' 17"
16	40° 38' 03"	19° 5' 01"	20° 92' 12"	55° 0' 22"	4° 74' 12"	46° 7' 20"
26	40° 35' 02"	19° 4' 01"	20° 80' 08"	52° 8' 26"	4° 62' 08"	44° 7' 24"
Dec. 6	40° 37' 07"	19° 3' 01"	20° 72' 03"	50° 2' 28"	4° 54' 02"	42° 3' 27"
16	40° 44' 12"	19° 4' 01"	20° 69' 03"	47° 4' 31"	4° 52' 02"	39° 6' 29"
26	40° 56' 17"	19° 5' 01"	20° 72' 09"	44° 3' 34"	4° 54' 08"	36° 7' 30"
36	40° 73' 17"	19° 6' 01"	20° 81' 09"	40° 9' 34"	4° 62' 08"	33° 7' 30"

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Aquilæ.		ω Aquilæ.		δ Aquilæ.			
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.		
	^h 18	^m 59	[°] 13	['] 39	^h 19	^m 18	[°] 2	['] 50
Jan. I	8.85	0.11	25.40	0.09	15.5	0.10	37.93	0.10
11	8.96	0.14	25.49	0.13	13.4	0.13	38.03	0.13
21	9.10	0.17	25.62	0.17	11.6	0.16	38.16	0.16
31	9.27	0.20	25.79	0.19	9.9	0.19	38.32	0.19
Feb. 10	9.47	0.23	25.98	0.22	8.5	0.22	38.51	0.22
20	9.70	0.25	26.20	0.24	7.2	0.23	38.73	0.23
Mar. I	9.95	0.26	26.44	0.26	6.3	0.26	38.96	0.26
11	10.21	0.28	26.70	0.27	5.7	0.26	39.22	0.26
21	10.49	0.29	26.97	0.28	5.5	0.28	39.48	0.28
31	10.78	0.29	27.25	0.29	5.8	0.29	39.76	0.29
Apr. 10	11.07	0.28	27.54	0.29	6.4	0.29	40.05	0.29
20	11.35	0.28	27.83	0.28	7.4	0.28	40.34	0.28
30	11.63	0.27	28.11	0.28	8.8	0.28	40.62	0.28
May 10	11.90	0.26	28.39	0.26	10.4	0.27	40.90	0.27
20	12.16	0.23	28.65	0.23	12.3	0.25	41.17	0.25
30	12.39	0.20	28.88	0.22	14.3	0.22	41.42	0.22
June 9	12.59	0.17	29.10	0.18	16.4	0.22	41.64	0.19
19	12.76	0.13	29.28	0.14	18.6	0.21	41.83	0.16
29	12.89	0.09	29.42	0.11	20.7	0.21	41.99	0.12
July 9	12.98	0.05	29.53	0.06	22.8	0.20	42.11	0.07
19	13.03	0.00	29.59	0.02	24.8	0.18	42.18	0.03
29	13.03	0.04	29.61	0.03	26.6	0.16	42.21	0.01
Aug. 8	12.99	0.07	29.58	0.07	28.2	0.14	42.20	0.05
18	12.92	0.12	29.51	0.10	29.6	0.12	42.15	0.09
28	12.80	0.15	29.41	0.14	30.8	0.09	42.06	0.13
Sept. 7	12.65	0.17	29.27	0.16	31.7	0.06	41.93	0.15
17	12.48	0.19	29.11	0.18	32.3	0.04	41.78	0.17
27	12.29	0.19	28.93	0.19	32.7	0.01	41.61	0.18
Oct. 7	12.10	0.18	28.74	0.18	32.8	0.02	41.43	0.18
17	11.92	0.18	28.56	0.18	32.6	0.05	41.25	0.16
27	11.74	0.15	28.38	0.15	32.1	0.07	41.09	0.15
Nov. 6	11.59	0.13	28.23	0.13	31.4	0.10	40.94	0.13
16	11.46	0.09	28.10	0.09	30.4	0.13	40.81	0.09
26	11.37	0.05	28.01	0.05	29.1	0.14	40.72	0.05
Dec. 6	11.32	0.00	27.96	0.02	27.7	0.17	40.67	0.01
16	11.32	0.03	27.94	0.02	26.0	0.18	40.66	0.03
26	11.35	0.09	27.96	0.07	24.2	0.18	40.69	0.07
36	11.44	0.11	28.03	0.07	22.4	0.18	40.76	0.07

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	<i>h</i> Sagittarii.		<i>γ</i> Aquilæ.		<i>α</i> Aquilæ. (<i>Altair</i>)	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 19 ^m 28	[°] 25 ['] 10	^h 19 ^m 39	[°] 10 ['] 17	^h 19 ^m 44	[°] 8 ['] 30
Jan. 1	25 ^s 08 ^s	44 [°] 0 [']	47 ^s 09 ^s	10 [°] 6 [']	8 ^s 35 ^s	49 [°] 0 [']
11	25 ^s 19 ^s	43 [°] 6 [']	47 ^s 15 ^s	8 [°] 9 [']	8 ^s 41 ^s	47 [°] 4 [']
21	25 ^s 33 ^s	43 [°] 2 [']	47 ^s 26 ^s	7 [°] 19 [']	8 ^s 51 ^s	45 [°] 7 [']
31	25 ^s 51 ^s	42 [°] 7 [']	47 ^s 40 ^s	5 [°] 4 [']	8 ^s 65 ^s	44 [°] 2 [']
	0 ^s 21 ^s	0 ['] 5 [']	0 ^s 17 ^s	1 ['] 4 [']	0 ^s 16 ^s	1 ['] 3 [']
Feb. 10	25 ^s 72 ^s	42 [°] 2 [']	47 ^s 57 ^s	4 [°] 0 [']	8 ^s 81 ^s	42 [°] 9 [']
20	25 ^s 96 ^s	41 [°] 7 [']	47 ^s 76 ^s	2 [°] 8 [']	9 ^s 00 ^s	41 [°] 8 [']
Mar. 1	26 ^s 22 ^s	41 [°] 0 [']	47 ^s 98 ^s	1 [°] 9 [']	9 ^s 22 ^s	41 [°] 0 [']
11	26 ^s 50 ^s	40 [°] 3 [']	48 ^s 22 ^s	1 [°] 4 [']	9 ^s 46 ^s	40 [°] 5 [']
	0 ^s 29 ^s	0 ['] 6 [']	0 ^s 26 ^s	0 ['] 2 [']	0 ^s 26 ^s	0 ['] 1 [']
21	26 ^s 79 ^s	39 [°] 7 [']	48 ^s 48 ^s	1 [°] 2 [']	9 ^s 72 ^s	40 [°] 4 [']
31	27 ^s 10 ^s	38 [°] 9 [']	48 ^s 76 ^s	1 [°] 4 [']	9 ^s 99 ^s	40 [°] 6 [']
Apr. 10	27 ^s 42 ^s	38 [°] 1 [']	49 ^s 04 ^s	2 [°] 0 [']	10 ^s 28 ^s	41 [°] 3 [']
20	27 ^s 74 ^s	37 [°] 2 [']	49 ^s 33 ^s	3 [°] 0 [']	10 ^s 57 ^s	42 [°] 3 [']
	0 ^s 32 ^s	0 ['] 8 [']	0 ^s 30 ^s	1 ['] 3 [']	0 ^s 29 ^s	1 ['] 2 [']
30	28 ^s 06 ^s	36 [°] 4 [']	49 ^s 63 ^s	4 [°] 3 [']	10 ^s 86 ^s	43 [°] 5 [']
May 10	28 ^s 38 ^s	35 [°] 6 [']	49 ^s 91 ^s	5 [°] 9 [']	11 ^s 15 ^s	45 [°] 1 [']
20	28 ^s 69 ^s	34 [°] 8 [']	50 ^s 19 ^s	7 [°] 7 [']	11 ^s 42 ^s	46 [°] 9 [']
30	28 ^s 97 ^s	34 [°] 2 [']	50 ^s 44 ^s	9 [°] 7 [']	11 ^s 69 ^s	48 [°] 9 [']
	0 ^s 27 ^s	0 ['] 5 [']	0 ^s 24 ^s	2 ['] 1 [']	0 ^s 24 ^s	2 ['] 1 [']
June 9	29 ^s 24 ^s	33 [°] 7 [']	50 ^s 68 ^s	11 [°] 8 [']	11 ^s 93 ^s	51 [°] 0 [']
19	29 ^s 47 ^s	33 [°] 3 [']	50 ^s 88 ^s	14 [°] 0 [']	12 ^s 14 ^s	53 [°] 1 [']
29	29 ^s 66 ^s	33 [°] 0 [']	51 ^s 05 ^s	16 [°] 1 [']	12 ^s 31 ^s	55 [°] 2 [']
July 9	29 ^s 81 ^s	32 [°] 9 [']	51 ^s 19 ^s	18 [°] 2 [']	12 ^s 45 ^s	57 [°] 2 [']
	0 ^s 10 ^s	0 ['] 1 [']	0 ^s 09 ^s	2 ['] 0 [']	0 ^s 10 ^s	1 ['] 9 [']
19	29 ^s 91 ^s	33 [°] 0 [']	51 ^s 28 ^s	20 [°] 2 [']	12 ^s 55 ^s	59 [°] 1 [']
29	29 ^s 96 ^s	33 [°] 1 [']	51 ^s 32 ^s	22 [°] 1 [']	12 ^s 60 ^s	60 [°] 9 [']
Aug. 8	29 ^s 97 ^s	33 [°] 4 [']	51 ^s 32 ^s	23 [°] 7 [']	12 ^s 60 ^s	62 [°] 5 [']
18	29 ^s 93 ^s	33 [°] 8 [']	51 ^s 27 ^s	25 [°] 2 [']	12 ^s 57 ^s	63 [°] 8 [']
	0 ^s 09 ^s	0 ['] 4 [']	0 ^s 08 ^s	1 ['] 2 [']	0 ^s 08 ^s	1 ['] 2 [']
28	29 ^s 84 ^s	34 [°] 2 [']	51 ^s 19 ^s	26 [°] 4 [']	12 ^s 49 ^s	65 [°] 0 [']
Sept. 7	29 ^s 72 ^s	34 [°] 6 [']	51 ^s 08 ^s	27 [°] 4 [']	12 ^s 38 ^s	65 [°] 9 [']
17	29 ^s 56 ^s	35 [°] 0 [']	50 ^s 93 ^s	28 [°] 1 [']	12 ^s 24 ^s	66 [°] 6 [']
27	29 ^s 38 ^s	35 [°] 4 [']	50 ^s 76 ^s	28 [°] 5 [']	12 ^s 07 ^s	67 [°] 0 [']
	0 ^s 19 ^s	0 ['] 3 [']	0 ^s 18 ^s	0 ['] 2 [']	0 ^s 17 ^s	0 ['] 2 [']
Oct. 7	29 ^s 19 ^s	35 [°] 7 [']	50 ^s 58 ^s	28 [°] 7 [']	11 ^s 90 ^s	67 [°] 2 [']
17	29 ^s 00 ^s	36 [°] 0 [']	50 ^s 40 ^s	28 [°] 6 [']	11 ^s 72 ^s	67 [°] 1 [']
27	28 ^s 82 ^s	36 [°] 1 [']	50 ^s 23 ^s	28 [°] 3 [']	11 ^s 55 ^s	66 [°] 8 [']
Nov. 6	28 ^s 66 ^s	36 [°] 1 [']	50 ^s 07 ^s	27 [°] 6 [']	11 ^s 39 ^s	66 [°] 3 [']
	0 ^s 14 ^s	0 ['] 0 [']	0 ^s 14 ^s	0 ['] 8 [']	0 ^s 14 ^s	0 ['] 8 [']
16	28 ^s 52 ^s	36 [°] 1 [']	49 ^s 93 ^s	26 [°] 8 [']	11 ^s 25 ^s	65 [°] 5 [']
26	28 ^s 42 ^s	36 [°] 0 [']	49 ^s 82 ^s	25 [°] 7 [']	11 ^s 14 ^s	64 [°] 5 [']
Dec. 6	28 ^s 36 ^s	35 [°] 7 [']	49 ^s 75 ^s	24 [°] 4 [']	11 ^s 07 ^s	63 [°] 3 [']
16	28 ^s 35 ^s	35 [°] 5 [']	49 ^s 71 ^s	22 [°] 9 [']	11 ^s 03 ^s	61 [°] 8 [']
	0 ^s 03 ^s	0 ['] 4 [']	0 ^s 00 ^s	1 ['] 6 [']	0 ^s 00 ^s	1 ['] 5 [']
26	28 ^s 38 ^s	35 [°] 1 [']	49 ^s 71 ^s	21 [°] 3 [']	11 ^s 03 ^s	60 [°] 3 [']
36	28 ^s 46 ^s	34 [°] 8 [']	49 ^s 75 ^s	19 [°] 6 [']	11 ^s 07 ^s	58 [°] 8 [']

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α^3 Capricorni.			α Pavonis.			ρ Capricorni.		
	R. A.		Dec. South.	R. A.		Dec. South.	R. A.		Dec. South.
	h	m	° /	h	m	° /	h	m	° /
	20	10	12 57	20	14	57 9	20	21	18 15
Jan. 1	29° 96'	0° 05'	45° 3'	51° 20'	0° 04'	60° 0'	5° 48'	0° 04'	34° 0'
11	30° 01'	0° 09'	45° 6'	51° 24'	0° 12'	57° 8'	5° 52'	0° 08'	34° 0'
21	30° 10'	0° 12'	45° 8'	51° 25'	0° 18'	57° 4'	5° 60'	0° 12'	33° 9'
31	30° 22'	0° 15'	46° 0'	51° 55'	0° 24'	52° 7'	5° 72'	0° 15'	33° 6'
Feb. 10	30° 37'	0° 18'	46° 0'	51° 79'	0° 30'	50° 2'	5° 87'	0° 18'	33° 3'
20	30° 55'	0° 21'	45° 9'	52° 09'	0° 35'	47° 8'	6° 05'	0° 20'	32° 9'
Mar. 1	30° 76'	0° 23'	45° 7'	52° 44'	0° 39'	45° 5'	6° 25'	0° 23'	32° 3'
11	30° 99'	0° 25'	45° 3'	52° 83'	0° 43'	43° 4'	6° 48'	0° 25'	31° 6'
21	31° 24'	0° 27'	44° 7'	53° 26'	0° 46'	41° 5'	6° 73'	0° 27'	30° 8'
31	31° 51'	0° 29'	43° 9'	53° 72'	0° 48'	39° 7'	7° 00'	0° 29'	29° 8'
Apr. 10	31° 80'	0° 30'	42° 9'	54° 20'	0° 50'	38° 3'	7° 29'	0° 30'	28° 7'
20	32° 10'	0° 30'	41° 8'	54° 70'	0° 51'	37° 1'	7° 59'	0° 31'	27° 5'
30	32° 40'	0° 30'	40° 6'	55° 21'	0° 50'	36° 2'	7° 90'	0° 31'	26° 2'
May 10	32° 70'	0° 30'	39° 3'	55° 71'	0° 50'	35° 7'	8° 21'	0° 31'	25° 0'
20	33° 00'	0° 29'	37° 9'	56° 21'	0° 48'	35° 5'	8° 52'	0° 31'	23° 7'
30	33° 29'	0° 27'	36° 6'	56° 69'	0° 44'	35° 6'	8° 83'	0° 28'	22° 5'
June 9	33° 56'	0° 25'	35° 3'	57° 13'	0° 40'	36° 1'	9° 11'	0° 26'	21° 3'
19	33° 81'	0° 21'	34° 1'	57° 53'	0° 35'	36° 9'	9° 37'	0° 22'	20° 3'
29	34° 02'	0° 17'	32° 9'	57° 88'	0° 29'	38° 0'	9° 59'	0° 19'	19° 5'
July 9	34° 19'	0° 14'	32° 0'	58° 17'	0° 21'	39° 5'	9° 78'	0° 15'	18° 8'
19	34° 33'	0° 09'	31° 2'	58° 38'	0° 13'	41° 1'	9° 93'	0° 11'	18° 2'
29	34° 42'	0° 04'	30° 6'	58° 51'	0° 06'	43° 0'	10° 04'	0° 06'	17° 9'
Aug. 8	34° 46'	0° 01'	30° 2'	58° 57'	0° 02'	44° 9'	10° 10'	0° 00'	17° 8'
18	34° 45'	0° 04'	29° 9'	58° 55'	0° 10'	46° 9'	10° 10'	0° 04'	17° 8'
28	34° 41'	0° 09'	29° 8'	58° 45'	0° 17'	48° 9'	10° 06'	0° 08'	18° 0'
Sept. 7	34° 32'	0° 12'	29° 8'	58° 28'	0° 23'	50° 7'	9° 08'	0° 12'	18° 2'
17	34° 20'	0° 15'	29° 9'	58° 05'	0° 28'	52° 4'	9° 86'	0° 15'	18° 5'
27	34° 05'	0° 16'	30° 0'	57° 77'	0° 32'	53° 8'	9° 71'	0° 16'	18° 9'
Oct. 7	33° 89'	0° 17'	30° 3'	57° 45'	0° 34'	54° 8'	9° 55'	0° 18'	19° 4'
17	33° 72'	0° 17'	30° 6'	57° 11'	0° 34'	55° 5'	9° 37'	0° 17'	19° 8'
27	33° 55'	0° 16'	31° 0'	56° 77'	0° 32'	55° 8'	9° 20'	0° 16'	20° 2'
Nov. 6	33° 39'	0° 14'	31° 3'	56° 45'	0° 30'	55° 6'	9° 04'	0° 15'	20° 5'
16	33° 25'	0° 12'	31° 7'	56° 15'	0° 25'	55° 1'	8° 89'	0° 13'	20° 8'
26	33° 13'	0° 08'	32° 1'	55° 90'	0° 20'	54° 1'	8° 76'	0° 09'	21° 1'
Dec. 6	33° 05'	0° 05'	32° 5'	55° 70'	0° 14'	52° 7'	8° 67'	0° 05'	21° 3'
16	33° 00'	0° 01'	32° 9'	55° 56'	0° 06'	51° 0'	8° 62'	0° 02'	21° 4'
26	32° 99'	0° 03'	33° 2'	55° 50'	0° 00'	49° 1'	8° 60'	0° 02'	21° 5'
36	33° 02'	0° 03'	33° 6'	55° 50'	0° 00'	46° 9'	8° 62'	0° 02'	21° 5'

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Cygni.		32 Vulpeculæ.		61 ^r Cygni.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 20 ^m 36	^o 44 ['] 47	^h 20 ^m 48	^o 27 ['] 32	^h 21 ^m 0	^o 38 ['] 4
Jan. 1	46 ^s .88 ^s	59 ["] .1 ["]	45 ^s .43 ^s	43 ["] .5 ["]	47 ^s .41 ^s	70 ["] .7 ["]
11	46 ^s .83 ^s	56 ["] .3 ["]	45 ^s .41 ^s	41 ["] .3 ["]	47 ^s .36 ^s	68 ["] .4 ["]
21	46 ^s .82 ^s	53 ["] .4 ["]	45 ^s .42 ^s	38 ["] .9 ["]	47 ^s .35 ^s	65 ["] .9 ["]
31	46 ^s .88 ^s	50 ["] .2 ["]	45 ^s .48 ^s	36 ["] .4 ["]	47 ^s .39 ^s	63 ["] .3 ["]
Feb. 10	46 ^s .98 ^s	47 ["] .3 ["]	45 ^s .57 ^s	34 ["] .2 ["]	47 ^s .47 ^s	60 ["] .5 ["]
20	47 ^s .14 ^s	44 ["] .6 ["]	45 ^s .70 ^s	32 ["] .2 ["]	47 ^s .61 ^s	58 ["] .2 ["]
Mar. 1	47 ^s .34 ^s	42 ["] .2 ["]	45 ^s .86 ^s	30 ["] .5 ["]	47 ^s .78 ^s	56 ["] .1 ["]
11	47 ^s .58 ^s	40 ["] .3 ["]	46 ^s .06 ^s	29 ["] .1 ["]	47 ^s .99 ^s	54 ["] .3 ["]
21	47 ^s .86 ^s	38 ["] .8 ["]	46 ^s .30 ^s	28 ["] .1 ["]	48 ^s .24 ^s	52 ["] .9 ["]
31	48 ^s .18 ^s	37 ["] .9 ["]	46 ^s .56 ^s	27 ["] .6 ["]	48 ^s .52 ^s	52 ["] .1 ["]
Apr. 10	48 ^s .52 ^s	37 ["] .6 ["]	46 ^s .85 ^s	27 ["] .6 ["]	48 ^s .84 ^s	51 ["] .8 ["]
20	48 ^s .88 ^s	37 ["] .8 ["]	47 ^s .15 ^s	28 ["] .1 ["]	49 ^s .17 ^s	52 ["] .1 ["]
30	49 ^s .25 ^s	38 ["] .7 ["]	47 ^s .46 ^s	29 ["] .1 ["]	49 ^s .52 ^s	52 ["] .9 ["]
May 10	49 ^s .63 ^s	40 ["] .1 ["]	47 ^s .78 ^s	30 ["] .5 ["]	49 ^s .88 ^s	54 ["] .3 ["]
20	49 ^s .99 ^s	42 ["] .0 ["]	48 ^s .09 ^s	32 ["] .4 ["]	50 ^s .23 ^s	56 ["] .1 ["]
30	50 ^s .33 ^s	44 ["] .3 ["]	48 ^s .40 ^s	34 ["] .6 ["]	50 ^s .58 ^s	58 ["] .3 ["]
June 9	50 ^s .65 ^s	47 ["] .0 ["]	48 ^s .69 ^s	37 ["] .0 ["]	50 ^s .91 ^s	60 ["] .9 ["]
19	50 ^s .93 ^s	50 ["] .0 ["]	48 ^s .95 ^s	39 ["] .7 ["]	51 ^s .20 ^s	63 ["] .8 ["]
29	51 ^s .17 ^s	53 ["] .2 ["]	49 ^s .18 ^s	42 ["] .5 ["]	51 ^s .46 ^s	66 ["] .9 ["]
July 9	51 ^s .35 ^s	56 ["] .5 ["]	49 ^s .37 ^s	45 ["] .4 ["]	51 ^s .68 ^s	70 ["] .1 ["]
19	51 ^s .49 ^s	59 ["] .9 ["]	49 ^s .52 ^s	48 ["] .2 ["]	51 ^s .85 ^s	73 ["] .4 ["]
29	51 ^s .57 ^s	63 ["] .2 ["]	49 ^s .63 ^s	51 ["] .0 ["]	51 ^s .97 ^s	76 ["] .7 ["]
Aug. 8	51 ^s .59 ^s	66 ["] .5 ["]	49 ^s .68 ^s	53 ["] .6 ["]	52 ^s .04 ^s	79 ["] .9 ["]
18	51 ^s .55 ^s	69 ["] .5 ["]	49 ^s .69 ^s	56 ["] .1 ["]	52 ^s .06 ^s	82 ["] .9 ["]
28	51 ^s .46 ^s	72 ["] .3 ["]	49 ^s .65 ^s	58 ["] .4 ["]	52 ^s .03 ^s	85 ["] .7 ["]
Sept. 7	51 ^s .32 ^s	74 ["] .9 ["]	49 ^s .56 ^s	60 ["] .4 ["]	51 ^s .95 ^s	88 ["] .3 ["]
17	51 ^s .14 ^s	77 ["] .1 ["]	49 ^s .44 ^s	62 ["] .0 ["]	51 ^s .83 ^s	90 ["] .5 ["]
27	50 ^s .92 ^s	78 ["] .9 ["]	49 ^s .29 ^s	63 ["] .4 ["]	51 ^s .67 ^s	92 ["] .4 ["]
Oct. 7	50 ^s .68 ^s	80 ["] .2 ["]	49 ^s .12 ^s	64 ["] .4 ["]	51 ^s .48 ^s	93 ["] .9 ["]
17	50 ^s .42 ^s	81 ["] .1 ["]	48 ^s .93 ^s	65 ["] .0 ["]	51 ^s .27 ^s	95 ["] .0 ["]
27	50 ^s .15 ^s	81 ["] .6 ["]	48 ^s .73 ^s	65 ["] .2 ["]	51 ^s .06 ^s	95 ["] .6 ["]
Nov. 6	49 ^s .88 ^s	81 ["] .5 ["]	48 ^s .54 ^s	65 ["] .0 ["]	50 ^s .84 ^s	95 ["] .8 ["]
16	49 ^s .63 ^s	80 ["] .9 ["]	48 ^s .36 ^s	64 ["] .5 ["]	50 ^s .63 ^s	95 ["] .5 ["]
26	49 ^s .40 ^s	79 ["] .8 ["]	48 ^s .19 ^s	63 ["] .5 ["]	50 ^s .44 ^s	94 ["] .7 ["]
Dec. 6	49 ^s .19 ^s	78 ["] .3 ["]	48 ^s .05 ^s	62 ["] .2 ["]	50 ^s .27 ^s	93 ["] .5 ["]
16	49 ^s .03 ^s	76 ["] .3 ["]	47 ^s .94 ^s	60 ["] .6 ["]	50 ^s .13 ^s	91 ["] .9 ["]
26	48 ^s .90 ^s	73 ["] .9 ["]	47 ^s .86 ^s	58 ["] .7 ["]	50 ^s .02 ^s	89 ["] .9 ["]
36	48 ^s .82 ^s	71 ["] .2 ["]	47 ^s .81 ^s	56 ["] .5 ["]	49 ^s .95 ^s	87 ["] .6 ["]

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Cygni.			α Cephei.			β Aquarii.		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. South.	
	^h 21	^m 7	[°] 29	^h 21	^m 15	[°] 62	^h 21	^m 24	[°] 6
Jan. 1	8 ^s .53	0 ^s .04	26 ^s .9	18 ^s .61	0 ^s .22	54 ^s .7	23 ^s .65	0 ^s .02	58 ^s .3
11	8 ^s .49	0 ^s .01	24 ^s .7	18 ^s .39	0 ^s .13	52 ^s .0	23 ^s .63	0 ^s .00	58 ^s .9
21	8 ^s .48	0 ^s .03	22 ^s .4	18 ^s .26	0 ^s .06	49 ^s .0	23 ^s .63	0 ^s .04	59 ^s .4
31	8 ^s .51	0 ^s .08	20 ^s .1	18 ^s .20	0 ^s .03	45 ^s .8	23 ^s .67	0 ^s .08	59 ^s .8
Feb. 10	8 ^s .59	0 ^s .11	17 ^s .6	18 ^s .23	0 ^s .11	42 ^s .3	23 ^s .75	0 ^s .10	60 ^s .2
20	8 ^s .70	0 ^s .15	15 ^s .4	18 ^s .34	0 ^s .19	39 ^s .2	23 ^s .85	0 ^s .14	60 ^s .3
Mar. 1	8 ^s .85	0 ^s .18	13 ^s .6	18 ^s .53	0 ^s .27	36 ^s .2	23 ^s .99	0 ^s .16	60 ^s .2
11	9 ^s .03	0 ^s .22	12 ^s .1	18 ^s .80	0 ^s .35	33 ^s .6	24 ^s .15	0 ^s .19	59 ^s .9
21	9 ^s .25	0 ^s .26	11 ^s .0	19 ^s .15	0 ^s .40	31 ^s .4	24 ^s .34	0 ^s .23	59 ^s .4
31	9 ^s .51	0 ^s .27	10 ^s .3	19 ^s .55	0 ^s .45	29 ^s .7	24 ^s .57	0 ^s .24	58 ^s .6
Apr. 10	9 ^s .78	0 ^s .30	10 ^s .1	20 ^s .00	0 ^s .49	28 ^s .6	24 ^s .81	0 ^s .27	57 ^s .6
20	10 ^s .08	0 ^s .32	10 ^s .5	20 ^s .49	0 ^s .52	28 ^s .1	25 ^s .08	0 ^s .29	56 ^s .4
30	10 ^s .40	0 ^s .32	11 ^s .3	21 ^s .01	0 ^s .53	28 ^s .3	25 ^s .37	0 ^s .29	55 ^s .0
May 10	10 ^s .72	0 ^s .33	12 ^s .6	21 ^s .54	0 ^s .52	29 ^s .0	25 ^s .66	0 ^s .31	53 ^s .4
20	11 ^s .05	0 ^s .32	14 ^s .3	22 ^s .06	0 ^s .50	30 ^s .3	25 ^s .97	0 ^s .30	51 ^s .7
30	11 ^s .37	0 ^s .30	16 ^s .4	22 ^s .56	0 ^s .46	32 ^s .2	26 ^s .27	0 ^s .30	50 ^s .0
June 9	11 ^s .67	0 ^s .28	18 ^s .8	23 ^s .02	0 ^s .42	34 ^s .5	26 ^s .57	0 ^s .28	48 ^s .2
19	11 ^s .95	0 ^s .24	21 ^s .5	23 ^s .44	0 ^s .37	37 ^s .3	26 ^s .85	0 ^s .26	46 ^s .5
29	12 ^s .19	0 ^s .21	24 ^s .3	23 ^s .81	0 ^s .30	40 ^s .4	27 ^s .11	0 ^s .23	44 ^s .8
July 9	12 ^s .40	0 ^s .17	27 ^s .2	24 ^s .11	0 ^s .22	43 ^s .8	27 ^s .34	0 ^s .19	43 ^s .3
19	12 ^s .57	0 ^s .12	30 ^s .1	24 ^s .33	0 ^s .14	47 ^s .4	27 ^s .53	0 ^s .15	41 ^s .9
29	12 ^s .69	0 ^s .08	33 ^s .0	24 ^s .47	0 ^s .06	51 ^s .0	27 ^s .68	0 ^s .11	40 ^s .7
Aug. 8	12 ^s .77	0 ^s .02	35 ^s .8	24 ^s .53	0 ^s .02	54 ^s .6	27 ^s .79	0 ^s .06	39 ^s .7
18	12 ^s .79	0 ^s .02	38 ^s .4	24 ^s .51	0 ^s .09	58 ^s .2	27 ^s .85	0 ^s .02	38 ^s .9
28	12 ^s .77	0 ^s .07	40 ^s .8	24 ^s .42	0 ^s .17	61 ^s .7	27 ^s .87	0 ^s .03	38 ^s .4
Sept. 7	12 ^s .70	0 ^s .10	43 ^s .0	24 ^s .25	0 ^s .24	64 ^s .9	27 ^s .84	0 ^s .06	38 ^s .0
17	12 ^s .60	0 ^s .14	44 ^s .8	24 ^s .01	0 ^s .30	67 ^s .8	27 ^s .78	0 ^s .09	37 ^s .8
27	12 ^s .46	0 ^s .17	46 ^s .4	23 ^s .71	0 ^s .35	70 ^s .4	27 ^s .69	0 ^s .13	37 ^s .8
Oct. 7	12 ^s .29	0 ^s .18	47 ^s .6	23 ^s .36	0 ^s .38	72 ^s .6	27 ^s .56	0 ^s .14	38 ^s .0
17	12 ^s .11	0 ^s .19	48 ^s .3	22 ^s .98	0 ^s .41	74 ^s .4	27 ^s .42	0 ^s .15	38 ^s .3
27	11 ^s .92	0 ^s .20	48 ^s .7	22 ^s .57	0 ^s .42	75 ^s .6	27 ^s .27	0 ^s .15	38 ^s .6
Nov. 6	11 ^s .72	0 ^s .19	48 ^s .7	22 ^s .15	0 ^s .43	76 ^s .3	27 ^s .12	0 ^s .14	39 ^s .1
16	11 ^s .53	0 ^s .17	48 ^s .3	21 ^s .72	0 ^s .41	76 ^s .4	26 ^s .98	0 ^s .11	39 ^s .7
26	11 ^s .36	0 ^s .16	47 ^s .5	21 ^s .31	0 ^s .38	76 ^s .0	26 ^s .84	0 ^s .10	40 ^s .3
Dec. 6	11 ^s .20	0 ^s .12	46 ^s .3	20 ^s .93	0 ^s .35	75 ^s .0	26 ^s .73	0 ^s .07	40 ^s .9
16	11 ^s .08	0 ^s .10	44 ^s .8	20 ^s .58	0 ^s .30	73 ^s .4	26 ^s .63	0 ^s .06	41 ^s .6
26	10 ^s .98	0 ^s .07	42 ^s .9	20 ^s .28	0 ^s .25	71 ^s .3	26 ^s .56	0 ^s .03	42 ^s .2
36	10 ^s .91	0 ^s .07	40 ^s .8	20 ^s .03	0 ^s .25	68 ^s .8	26 ^s .53	0 ^s .03	42 ^s .8

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Cephei.		ϵ Pegasi.		16 Pegasi.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 21 ^m 26	[°] 69 ['] 57	^h 21 ^m 37	[°] 9 ['] 15	^h 21 ^m 46	[°] 25 ['] 17
Jan. 1	51° 70' 0.36	70° 5' 2.6	30° 30' 0.04	19° 8' 1.3	52° 45' 0.07	24° 1' 1.8
11	51° 34' 0.25	67° 9' 2.8	30° 26' 0.01	18° 5' 1.3	52° 38' 0.04	22° 3' 1.9
21	51° 09' 0.15	65° 1' 3.2	30° 25' 0.02	17° 2' 1.3	52° 34' 0.00	20° 4' 2.1
31	50° 94' 0.03	61° 9' 3.6	30° 27' 0.05	15° 9' 1.2	52° 34' 0.03	18° 3' 2.0
Feb. 10	50° 91' 0.09	58° 3' 3.2	{30° 27'} 0.08	{24° 1'} 1.0	52° 37' 0.07	16° 3' 1.9
20	51° 00' 0.20	55° 1' 3.1	30° 41' 0.11	13° 6' 0.8	52° 44' 0.10	14° 4' 1.8
Mar. 1	51° 20' 0.32	52° 0' 2.8	30° 52' 0.15	12° 8' 0.6	52° 54' 0.15	12° 6' 1.5
11	51° 52' 0.43	49° 2' 2.4	30° 67' 0.18	12° 2' 0.2	52° 69' 0.18	11° 1' 1.0
21	51° 95' 0.51	46° 8' 2.0	30° 85' 0.21	12° 0' 0.1	52° 87' 0.21	10° 1' 0.6
31	52° 46' 0.58	44° 8' 1.4	31° 06' 0.24	12° 1' 0.4	53° 08' 0.25	9° 5' 0.2
Apr. 10	53° 04' 0.64	43° 4' 0.8	31° 30' 0.26	12° 5' 0.8	53° 33' 0.27	9° 3' 0.2
20	53° 68' 0.68	42° 6' 0.2	31° 56' 0.28	13° 3' 1.1	53° 60' 0.30	9° 5' 0.7
30	54° 36' 0.69	42° 4' 0.5	31° 84' 0.30	14° 4' 1.5	53° 90' 0.31	10° 2' 1.1
May 10	55° 05' 0.68	42° 9' 1.1	32° 14' 0.30	15° 9' 1.7	54° 21' 0.32	11° 3' 1.5
20	55° 73' 0.66	44° 0' 1.6	32° 44' 0.31	17° 6' 1.9	54° 53' 0.32	12° 8' 1.9
30	56° 39' 0.62	45° 6' 2.1	32° 75' 0.29	19° 5' 2.1	54° 85' 0.32	14° 7' 2.2
June 9	57° 01' 0.55	47° 7' 2.6	33° 04' 0.28	21° 6' 2.1	55° 17' 0.30	16° 9' 2.5
19	57° 56' 0.48	50° 3' 3.0	33° 32' 0.27	23° 7' 2.2	55° 47' 0.27	19° 4' 2.6
29	58° 04' 0.39	53° 3' 3.3	33° 59' 0.23	25° 9' 2.2	55° 74' 0.24	22° 0' 2.7
July 9	58° 43' 0.30	56° 6' 3.5	33° 82' 0.20	28° 1' 2.2	55° 98' 0.21	24° 7' 2.7
19	58° 73' 0.19	60° 1' 3.6	34° 02' 0.15	30° 3' 2.0	56° 19' 0.16	27° 4' 2.7
29	58° 92' 0.08	63° 7' 3.7	34° 17' 0.11	32° 3' 1.8	56° 35' 0.12	30° 1' 2.7
Aug. 8	59° 00' 0.02	67° 4' 3.7	34° 28' 0.07	34° 1' 1.7	56° 47' 0.07	32° 8' 2.5
18	58° 98' 0.12	71° 1' 3.6	34° 35' 0.03	35° 8' 1.5	56° 54' 0.03	35° 3' 2.3
28	58° 86' 0.23	74° 7' 3.5	34° 38' 0.02	37° 3' 1.2	56° 57' 0.02	37° 6' 2.1
Sept. 7	58° 63' 0.32	78° 2' 3.1	34° 36' 0.05	38° 5' 1.0	56° 55' 0.06	39° 7' 1.8
17	58° 31' 0.40	81° 3' 2.8	34° 31' 0.09	39° 5' 0.8	56° 49' 0.09	41° 5' 1.6
27	57° 91' 0.47	84° 1' 2.5	34° 22' 0.12	40° 3' 0.5	56° 40' 0.13	43° 1' 1.2
Oct. 7	57° 44' 0.52	86° 6' 2.1	34° 10' 0.13	40° 8' 0.3	56° 27' 0.15	44° 3' 0.9
17	56° 92' 0.57	88° 7' 1.5	33° 97' 0.15	41° 1' 0.0	56° 12' 0.16	45° 2' 0.6
27	56° 35' 0.60	90° 2' 1.0	33° 82' 0.15	41° 1' 0.2	55° 96' 0.17	45° 8' 0.2
Nov. 6	55° 75' 0.60	91° 2' 0.5	33° 67' 0.15	40° 9' 0.5	55° 79' 0.17	46° 0' 0.2
16	55° 15' 0.60	91° 7' 0.2	33° 52' 0.14	40° 4' 0.6	55° 62' 0.16	45° 8' 0.5
26	54° 55' 0.57	91° 5' 0.7	33° 38' 0.13	39° 8' 0.9	55° 46' 0.15	45° 3' 0.9
Dec. 6	53° 98' 0.53	90° 8' 1.3	33° 25' 0.10	38° 9' 1.0	55° 31' 0.14	44° 4' 1.2
16	53° 45' 0.47	89° 5' 1.9	33° 15' 0.08	37° 9' 1.1	55° 17' 0.11	43° 2' 1.5
26	52° 98' 0.40	87° 6' 2.4	33° 07' 0.06	36° 8' 1.3	55° 06' 0.08	41° 7' 1.7
36	52° 58' 0.40	85° 2' 2.4	33° 01' 0.06	35° 5' 1.3	54° 98' 0.08	40° 0' 1.7

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Aquarii.		α Gruis.		θ Aquarii.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 21 ^m 58	^o 0 58	^h 21 ^m 59	^o 47 36	^h 22 ^m 9	^o 8 27
Jan. 1	47° 81' 0.05	39° 4' 0.8	38° 32' 0.09	67° 6' 1.4	39° 33' 0.06	28° 8' 0.5
11	47° 76' 0.02	40° 2' 0.7	38° 23' 0.06	66° 2' 1.7	39° 27' 0.03	29° 3' 0.3
21	47° 74' 0.01	40° 9' 0.7	38° 17' 0.01	64° 5' 2.0	39° 24' 0.00	29° 6' 0.3
31	47° 75' 0.03	41° 6' 0.6	38° 16' 0.04	62° 5' 2.3	39° 24' 0.03	29° 9' 0.1
Feb. 10	47° 78' 0.07	42° 2' 0.4	38° 20' 0.09	60° 2' 2.5	39° 27' 0.06	30° 0' 0.1
20	47° 85' 0.10	42° 6' 0.2	38° 29' 0.14	57° 7' 2.5	39° 33' 0.09	29° 9' 0.3
Mar. 1	47° 95' 0.12	42° 8' 0.0	38° 43' 0.17	55° 2' 2.6	39° 42' 0.12	29° 6' 0.5
11	48° 07' 0.17	42° 8' 0.3	38° 60' 0.22	52° 6' 2.6	39° 54' 0.15	29° 1' 0.7
21	48° 24' 0.19	42° 5' 0.6	38° 82' 0.27	50° 0' 2.5	39° 69' 0.18	28° 4' 0.9
31	48° 43' 0.22	41° 9' 0.8	39° 09' 0.30	47° 5' 2.5	39° 87' 0.22	27° 5' 1.2
Apr. 10	48° 65' 0.25	41° 1' 1.2	39° 39' 0.34	45° 0' 2.3	40° 09' 0.25	26° 3' 1.4
20	48° 90' 0.27	39° 9' 1.3	39° 73' 0.37	42° 7' 2.1	40° 34' 0.27	24° 9' 1.5
30	49° 17' 0.29	38° 6' 1.6	40° 10' 0.40	40° 6' 1.9	40° 61' 0.28	23° 4' 1.7
May 10	49° 46' 0.30	37° 0' 1.7	40° 50' 0.41	38° 7' 1.7	40° 89' 0.31	21° 7' 1.8
20	49° 76' 0.31	35° 3' 1.9	40° 91' 0.42	37° 0' 1.3	41° 20' 0.31	19° 9' 1.9
30	50° 07' 0.30	33° 4' 1.9	41° 33' 0.42	35° 7' 1.0	41° 51' 0.30	18° 0' 1.9
June 9	50° 37' 0.29	31° 5' 1.9	41° 75' 0.40	34° 7' 0.7	41° 81' 0.30	16° 1' 1.7
19	50° 66' 0.27	29° 6' 2.0	42° 15' 0.38	34° 0' 0.2	42° 11' 0.29	14° 4' 1.7
29	50° 93' 0.25	27° 6' 1.8	42° 53' 0.34	33° 8' 0.2	42° 40' 0.26	12° 7' 1.6
July 9	51° 18' 0.22	25° 8' 1.7	42° 87' 0.30	34° 0' 0.6	42° 66' 0.23	11° 1' 1.4
19	51° 40' 0.18	24° 1' 1.5	43° 17' 0.25	34° 6' 1.0	42° 89' 0.19	9° 7' 1.2
29	51° 58' 0.14	22° 6' 1.4	43° 42' 0.20	35° 6' 1.2	43° 08' 0.15	8° 5' 0.9
Aug. 8	51° 72' 0.09	21° 2' 1.1	43° 62' 0.13	36° 8' 1.6	43° 23' 0.11	7° 6' 0.7
18	51° 81' 0.05	20° 1' 0.9	43° 75' 0.06	38° 4' 1.7	43° 34' 0.06	6° 9' 0.5
28	51° 86' 0.01	19° 2' 0.7	43° 81' 0.01	40° 1' 1.9	43° 40' 0.02	6° 4' 0.3
Sept. 7	51° 87' 0.03	18° 5' 0.5	43° 82' 0.06	42° 0' 1.9	43° 42' 0.02	6° 1' 0.0
17	51° 84' 0.07	18° 0' 0.2	43° 76' 0.12	43° 9' 1.9	43° 40' 0.06	6° 1' 0.1
27	51° 77' 0.10	17° 8' 0.1	43° 64' 0.16	45° 8' 1.8	43° 34' 0.09	6° 2' 0.4
Oct. 7	51° 67' 0.12	17° 7' 0.1	43° 48' 0.20	47° 6' 1.7	43° 25' 0.11	6° 6' 0.4
17	51° 55' 0.13	17° 8' 0.3	43° 28' 0.23	49° 3' 1.4	43° 14' 0.13	7° 0' 0.5
27	51° 42' 0.14	18° 1' 0.4	43° 05' 0.24	50° 7' 1.1	43° 01' 0.14	7° 5' 0.6
Nov. 6	51° 28' 0.14	18° 5' 0.5	42° 81' 0.24	51° 8' 0.7	42° 87' 0.14	8° 1' 0.6
16	51° 14' 0.14	19° 0' 0.7	42° 57' 0.24	52° 5' 0.3	42° 73' 0.14	8° 7' 0.7
26	51° 00' 0.12	19° 7' 0.7	42° 33' 0.22	52° 8' 0.1	42° 59' 0.12	9° 4' 0.6
Dec. 6	50° 88' 0.11	20° 4' 0.7	42° 11' 0.19	52° 7' 0.5	42° 47' 0.11	10° 0' 0.6
16	50° 77' 0.08	21° 1' 0.8	41° 92' 0.16	52° 2' 0.9	42° 36' 0.09	10° 6' 0.6
26	50° 69' 0.07	21° 9' 0.8	41° 76' 0.12	51° 3' 1.2	42° 27' 0.07	11° 2' 0.5
36	50° 62' 0.07	22° 7' 0.8	41° 64' 0.12	50° 1' 1.2	42° 20' 0.07	11° 7' 0.5

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	η Aquarii.			ζ Pegasi.			α Piscis Australis. (Fomalhaut)		
	R. A.		Dec. South.	R. A.		Dec. North.	R. A.		Dec. South.
	^h 22	^m 28	^o 0	^h 22	^m 34	^o 10	^h 22	^m 50	^o 30
			['] 48			['] 7			['] 20
Jan. I	^s 22° 15'	^s 0° 07'	56° 8'	^s 40° 01'	^s 0° 08'	29° 9'	^s 7° 71'	^s 0° 10'	35° 2'
II	22° 08'	0° 05'	57° 5'	40° 83'	0° 06'	28° 8'	7° 61'	0° 08'	34° 8'
21	22° 03'	0° 02'	58° 2'	40° 77'	0° 03'	27° 6'	7° 53'	0° 05'	34° 1'
31	22° 01'	0° 00'	58° 9'	40° 74'	0° 01'	26° 5'	7° 48'	0° 02'	33° 2'
Feb. 10	22° 01'	0° 04'	59° 4'	40° 73'	0° 02'	25° 3'	7° 46'	0° 01'	32° 1'
20	22° 05'	0° 07'	59° 7'	40° 75'	0° 07'	24° 3'	7° 47'	0° 06'	30° 6'
Mar. I	22° 12'	0° 09'	59° 9'	40° 82'	0° 10'	23° 4'	7° 53'	0° 08'	28° 8'
II	22° 21'	0° 14'	59° 9'	40° 92'	0° 12'	22° 8'	7° 61'	0° 13'	27° 0'
21	22° 35'	0° 17'	59° 6'	41° 04'	0° 16'	22° 5'	7° 74'	0° 16'	25° 1'
31	22° 52'	0° 20'	59° 0'	41° 20'	0° 20'	22° 5'	7° 90'	0° 20'	22° 9'
Apr. 10	22° 72'	0° 23'	58° 2'	41° 40'	0° 23'	22° 8'	8° 10'	0° 24'	20° 7'
20	22° 95'	0° 26'	57° 1'	41° 63'	0° 25'	23° 4'	8° 34'	0° 27'	18° 4'
30	23° 21'	0° 28'	55° 8'	41° 88'	0° 28'	24° 4'	8° 61'	0° 30'	16° 2'
May 10	23° 49'	0° 29'	54° 2'	42° 16'	0° 30'	25° 7'	8° 91'	0° 32'	13° 9'
20	23° 78'	0° 31'	52° 4'	42° 46'	0° 31'	27° 3'	9° 23'	0° 33'	11° 8'
30	24° 09'	0° 31'	50° 6'	42° 77'	0° 31'	29° 1'	9° 56'	0° 35'	9° 9'
June 9	24° 40'	0° 30'	48° 6'	43° 08'	0° 30'	31° 0'	9° 91'	0° 34'	8° 1'
19	24° 70'	0° 28'	46° 7'	43° 38'	0° 29'	33° 2'	10° 25'	0° 34'	6° 6'
29	24° 98'	0° 27'	44° 7'	43° 67'	0° 27'	35° 4'	10° 59'	0° 31'	5° 4'
July 9	25° 25'	0° 24'	42° 8'	43° 94'	0° 24'	37° 6'	10° 90'	0° 28'	4° 5'
19	25° 49'	0° 20'	41° 0'	44° 18'	0° 21'	39° 8'	11° 18'	0° 25'	3° 9'
29	25° 69'	0° 16'	39° 4'	44° 39'	0° 16'	41° 8'	11° 43'	0° 22'	3° 7'
Aug. 8	25° 85'	0° 12'	38° 0'	44° 55'	0° 13'	43° 8'	11° 65'	0° 17'	3° 8'
18	25° 97'	0° 08'	36° 9'	44° 68'	0° 08'	45° 6'	11° 82'	0° 10'	4° 3'
28	26° 05'	0° 04'	35° 9'	44° 76'	0° 04'	47° 2'	11° 92'	0° 07'	5° 0'
Sept. 7	26° 09'	0° 00'	35° 2'	44° 80'	0° 00'	48° 6'	11° 99'	0° 01'	6° 0'
17	26° 09'	0° 04'	34° 7'	44° 80'	0° 04'	49° 7'	12° 00'	0° 03'	7° 2'
27	26° 05'	0° 08'	34° 4'	44° 76'	0° 07'	50° 6'	11° 97'	0° 07'	8° 6'
Oct. 7	25° 97'	0° 10'	34° 4'	44° 69'	0° 09'	51° 2'	11° 90'	0° 10'	10° 0'
17	25° 87'	0° 11'	34° 5'	44° 60'	0° 11'	51° 6'	11° 80'	0° 13'	11° 5'
27	25° 76'	0° 13'	34° 7'	44° 49'	0° 13'	51° 8'	11° 67'	0° 15'	12° 8'
Nov. 6	25° 63'	0° 13'	35° 1'	44° 36'	0° 13'	51° 8'	11° 52'	0° 16'	14° 1'
16	25° 50'	0° 14'	35° 7'	44° 23'	0° 14'	51° 5'	11° 36'	0° 17'	15° 2'
26	25° 36'	0° 12'	36° 3'	44° 09'	0° 13'	51° 0'	11° 19'	0° 15'	16° 1'
Dec. 6	25° 24'	0° 12'	37° 0'	43° 96'	0° 12'	50° 3'	11° 04'	0° 14'	16° 7'
16	25° 12'	0° 10'	37° 8'	43° 84'	0° 11'	49° 5'	10° 89'	0° 11'	17° 1'
26	25° 02'	0° 08'	38° 5'	43° 73'	0° 09'	48° 5'	10° 75'	0° 11'	17° 2'
36	24° 94'		39° 3'	43° 64'		47° 4'	10° 64'		17° 0'

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Pegasi. (<i>Markab</i>)			γ Piscium.			κ Piscium.		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. North.	
	h m	° '		h m	° '		h m	° '	
	22 57	14 28		23 10	2 32		23 19	0 30	
Jan. 1	59 ^s .62	37 ^s .6	7 ^s .29	29 ^s .3	58 ^s .09	46 ^s .9			
11	59 ^s .52	36 ^s .5	7 ^s .20	28 ^s .5	57 ^s .99	46 ^s .2			
21	59 ^s .44	35 ^s .2	7 ^s .13	27 ^s .7	57 ^s .91	45 ^s .5			
31	59 ^s .39	33 ^s .9	7 ^s .07	27 ^s .0	57 ^s .84	44 ^s .8			
	0 ^s .04	1 ^s .3	0 ^s .03	0 ^s .7	0 ^s .04	0 ^s .5			
Feb. 10	59 ^s .35	32 ^s .6	7 ^s .04	26 ^s .3	57 ^s .80	44 ^s .3			
20	59 ^s .35	31 ^s .4	7 ^s .03	25 ^s .8	57 ^s .79	43 ^s .9			
Mar. 1	59 ^s .39	30 ^s .3	7 ^s .05	25 ^s .4	57 ^s .80	43 ^s .6			
11	59 ^s .46	29 ^s .4	7 ^s .11	25 ^s .3	57 ^s .85	43 ^s .6			
	0 ^s .10	0 ^s .6	0 ^s .10	0 ^s .1	0 ^s .08	0 ^s .3			
21	59 ^s .56	28 ^s .8	7 ^s .21	25 ^s .4	57 ^s .93	43 ^s .9			
31	59 ^s .70	28 ^s .5	7 ^s .34	25 ^s .8	58 ^s .05	44 ^s .4			
Apr. 10	59 ^s .88	28 ^s .5	7 ^s .50	26 ^s .4	58 ^s .20	45 ^s .1			
20	60 ^s .10	28 ^s .9	7 ^s .70	27 ^s .4	58 ^s .40	46 ^s .1			
	0 ^s .25	0 ^s .8	0 ^s .24	1 ^s .2	0 ^s .22	1 ^s .3			
30	60 ^s .35	29 ^s .7	7 ^s .94	28 ^s .6	58 ^s .62	47 ^s .4			
May 10	60 ^s .62	30 ^s .8	8 ^s .20	30 ^s .0	58 ^s .88	48 ^s .9			
20	60 ^s .92	32 ^s .2	8 ^s .48	31 ^s .7	59 ^s .16	50 ^s .7			
30	61 ^s .22	33 ^s .9	8 ^s .79	33 ^s .5	59 ^s .45	52 ^s .5			
	0 ^s .32	1 ^s .9	0 ^s .31	2 ^s .0	0 ^s .31	2 ^s .0			
June 9	61 ^s .54	35 ^s .8	9 ^s .10	35 ^s .5	59 ^s .76	54 ^s .5			
19	61 ^s .85	37 ^s .9	9 ^s .41	37 ^s .5	60 ^s .07	56 ^s .5			
29	62 ^s .16	40 ^s .1	9 ^s .71	39 ^s .6	60 ^s .38	58 ^s .5			
July 9	62 ^s .44	42 ^s .4	10 ^s .00	41 ^s .6	60 ^s .67	60 ^s .5			
	0 ^s .26	2 ^s .3	0 ^s .26	1 ^s .9	0 ^s .26	1 ^s .8			
19	62 ^s .70	44 ^s .7	10 ^s .26	43 ^s .5	60 ^s .93	62 ^s .3			
29	62 ^s .92	46 ^s .9	10 ^s .49	45 ^s .3	61 ^s .17	64 ^s .0			
Aug. 8	63 ^s .11	49 ^s .1	10 ^s .69	46 ^s .9	61 ^s .38	65 ^s .5			
18	63 ^s .26	51 ^s .1	10 ^s .85	48 ^s .3	61 ^s .55	66 ^s .9			
	0 ^s .10	1 ^s .8	0 ^s .12	1 ^s .2	0 ^s .12	1 ^s .1			
28	63 ^s .36	52 ^s .9	10 ^s .97	49 ^s .5	61 ^s .67	68 ^s .0			
Sept. 7	63 ^s .43	54 ^s .5	11 ^s .05	50 ^s .4	61 ^s .76	68 ^s .8			
17	63 ^s .45	55 ^s .9	11 ^s .09	51 ^s .1	61 ^s .81	69 ^s .3			
27	63 ^s .43	57 ^s .1	11 ^s .09	51 ^s .6	61 ^s .82	69 ^s .7			
	0 ^s .05	0 ^s .9	0 ^s .04	0 ^s .3	0 ^s .03	0 ^s .1			
Oct. 7	63 ^s .38	58 ^s .0	11 ^s .05	51 ^s .9	61 ^s .79	69 ^s .8			
17	63 ^s .31	58 ^s .7	10 ^s .99	51 ^s .9	61 ^s .74	69 ^s .8			
27	63 ^s .21	59 ^s .1	10 ^s .91	51 ^s .8	61 ^s .66	69 ^s .5			
Nov. 6	63 ^s .09	59 ^s .3	10 ^s .80	51 ^s .5	61 ^s .56	69 ^s .1			
	0 ^s .13	0 ^s .1	0 ^s .11	0 ^s .5	0 ^s .11	0 ^s .5			
16	62 ^s .96	59 ^s .2	10 ^s .69	51 ^s .0	61 ^s .45	68 ^s .6			
26	62 ^s .83	58 ^s .8	10 ^s .57	50 ^s .5	61 ^s .33	68 ^s .0			
Dec. 6	62 ^s .70	58 ^s .3	10 ^s .45	49 ^s .8	61 ^s .21	67 ^s .3			
16	62 ^s .58	57 ^s .5	10 ^s .33	49 ^s .1	61 ^s .09	66 ^s .6			
	0 ^s .12	1 ^s .0	0 ^s .11	0 ^s .9	0 ^s .11	0 ^s .8			
26	62 ^s .46	56 ^s .5	10 ^s .22	48 ^s .2	60 ^s .98	65 ^s .8			
36	62 ^s .35	55 ^s .4	10 ^s .11	47 ^s .4	60 ^s .87	65 ^s .0			

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	♈ Piscium.		γ Cephei.	
	R. A.	Dec. North.	R. A.	Dec. North.
	^h 23	[°] 4	^h 23	[°] 76
Jan. 1	^m 32 ^s 57.91	["] 53 28.4	^m 33 ^s 48.12	["] 52 49.7
11	57.81 0.10	27.6 0.8	47.29 0.83	48.7 1.0
21	57.71 0.10	26.7 0.9	46.53 0.76	47.2 1.5
31	57.64 0.07	25.9 0.8	45.86 0.67	45.1 2.1
	0.05	0.8	0.56	2.5
Feb. 10	57.59 0.03	25.1 0.6	45.30 0.41	42.6 2.8
20	57.56 0.01	24.5 0.5	44.89 0.25	39.8 3.1
Mar. 1	57.55 0.04	24.0 0.3	44.64 0.07	36.7 3.2
11	57.59 0.07	23.7 0.0	44.57 0.23	33.5 3.4
	0.11	0.2	0.30	2.9
21	57.66 0.14	23.7 0.5	44.70 0.47	30.1 2.6
31	57.77 0.18	23.9 0.8	45.00 0.63	27.2 2.3
Apr. 10	57.91 0.22	24.4 1.0	45.47 0.77	24.6 1.8
20	58.09 0.25	25.2 1.3	46.10 0.87	22.3 1.3
	0.28	1.6	0.95	0.7
30	58.31 0.30	26.2 1.7	46.87 1.01	19.2 0.2
May 10	58.56 0.30	27.5 2.0	47.74 1.03	18.5 0.5
20	58.84 0.31	29.1 2.0	48.69 1.08	18.3 1.0
30	59.14 0.29	30.8 2.1	49.70 0.93	18.8 1.5
	0.28	2.0	0.84	2.1
June 9	59.44 0.25	32.8 1.8	50.73 0.74	23.4 2.5
19	59.75 0.21	34.8 1.7	51.75 0.63	25.9 2.8
29	0.06 0.18	36.8 1.5	52.74 0.50	28.7 3.2
July 9	0.35 0.14	38.9 1.3	53.67 0.37	21.3 3.5
	0.63 0.10	40.9 1.1	54.51 0.22	23.4 3.6
19	0.88 0.06	42.7 0.9	55.25 0.08	25.9 3.7
Aug. 8	1.09 0.02	44.4 0.6	55.88 0.07	28.7 3.8
18	1.27 0.01	45.9 0.3	56.38 0.20	46.5 3.7
	0.25	0.8	0.34	50.2 3.6
28	1.41 0.04	47.2 0.5	56.75 0.34	39.0 3.3
Sept. 7	1.51 0.06	48.3 0.3	56.97 0.46	42.7 3.1
17	1.57 0.09	49.2 0.4	57.05 0.68	42.7 2.7
27	1.59 0.12	49.8 0.5	56.98 0.86	46.5 2.3
	0.01	0.8	0.87	50.2 0.0
Oct. 7	1.58 0.11	50.1 0.7	56.78 0.86	53.8 0.7
17	1.54 0.11	50.4 0.8	56.44 0.86	53.8 0.7
27	1.48 0.11	50.4 0.8	55.98 0.86	53.8 0.7
Nov. 6	1.39 0.11	50.1 0.8	55.41 0.86	53.8 0.7
	0.10	0.8	0.86	53.8 0.7
16	1.29 0.12	49.7 0.5	54.73 0.76	5.2 1.7
26	1.17 0.12	49.2 0.7	53.97 0.82	6.9 1.2
Dec. 6	1.05 0.12	48.5 0.7	53.15 0.86	8.1 0.6
16	0.93 0.11	47.8 0.8	52.29 0.87	8.7 0.0
	0.82 0.11	47.0 0.8	51.42 0.86	8.7 0.7
26	0.71 0.11	46.2 0.8	50.56 0.86	8.0 0.7
36	0.71 0.11	46.2 0.8	50.56 0.86	8.0 0.7

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	δ Sculptoris.		ω Piscium.	
	R. A.	Dec. South.	R. A.	Dec. North.
	^h 23	^o 28	^h 23	^o 6
Jan. 1	^m 41 ^s 50.55 ^s 0.14	['] 52 ["] 59.4 ["] 0.1	^m 52 ^s 20.41 ^s 0.12	['] 6 ["] 44.1 ["] 0.8
11	50.41 0.11	59.3 0.1	20.29 0.10	43.3 0.8
21	50.30 0.10	59.0 0.7	20.19 0.09	42.5 0.9
31	50.20 0.08	58.3 0.9	20.10 0.07	41.6 0.8
Feb. 10	50.12 0.04	57.4 1.3	20.03 0.04	40.8 0.6
20	50.08 0.02	56.1 1.5	19.99 0.02	40.2 0.6
Mar. 1	50.06 0.02	54.6 1.7	19.97 0.00	39.6 0.3
11	50.08 0.06	52.9 2.2	19.97 0.05	39.3 0.1
21	50.14 0.10	50.7 2.2	20.02 0.09	39.2 0.1
31	50.24 0.14	48.5 2.3	20.11 0.13	39.3 0.4
Apr. 10	50.38 0.19	46.2 2.4	20.24 0.17	39.7 0.7
20	50.57 0.22	43.8 2.4	20.41 0.20	40.4 1.0
30	50.79 0.26	41.4 2.5	20.61 0.24	41.4 1.2
May 10	51.05 0.29	38.9 2.4	20.85 0.27	42.6 1.5
20	51.34 0.31	36.5 2.2	21.12 0.29	44.1 1.7
30	51.65 0.33	34.3 2.2	21.41 0.30	45.8 1.9
June 9	51.98 0.34	32.1 1.9	21.71 0.31	47.7 2.0
19	52.32 0.33	30.2 1.6	22.02 0.31	49.7 2.0
29	52.65 0.33	28.6 1.3	22.33 0.30	51.7 2.1
July 9	52.98 0.31	27.3 0.9	22.63 0.29	53.8 2.0
19	53.29 0.28	26.4 0.6	22.92 0.26	55.8 1.9
29	53.57 0.25	25.8 0.2	23.18 0.22	57.7 1.7
Aug. 8	53.82 0.21	25.6 0.1	23.40 0.20	6 59.4 1.6
18	54.03 0.16	25.7 0.5	23.60 0.16	7 1.0 1.4
28	54.19 0.12	26.2 0.9	23.76 0.12	2.4 1.2
Sept. 7	54.31 0.07	27.1 1.2	23.88 0.08	3.6 0.9
17	54.38 0.03	28.3 1.3	23.96 0.04	4.5 0.7
27	54.41 0.01	29.6 1.4	24.00 0.00	5.2 0.5
Oct. 7	54.40 0.05	31.0 1.6	24.00 0.02	5.7 0.2
17	54.35 0.09	32.6 1.7	23.98 0.05	5.9 0.1
27	54.26 0.11	34.3 1.6	23.93 0.07	6.0 0.2
Nov. 6	54.15 0.13	35.9 1.4	23.86 0.09	5.8 0.3
16	54.02 0.15	37.3 1.2	23.77 0.11	5.5 0.5
26	53.87 0.15	38.5 1.0	23.66 0.11	5.0 0.6
Dec. 6	53.72 0.15	39.5 0.8	23.55 0.12	4.4 0.7
16	53.57 0.15	40.3 0.4	23.43 0.12	3.7 0.7
26	53.42 0.14	40.7 0.2	23.31 0.11	3.0 0.9
36	41 53.28	52 40.9	52 23.20	7 2.1

TABLE,

Showing the *Correction* to be applied to the *preceding* Apparent Places of Five Polar Stars, for the terms of Nutation involving 2 ζ .

Arg.	α Urs. Min.		γ Cephei.		σ Octantis.		δ Urs. Min.		λ Urs. Min.		Arg.		
ζ	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	ζ		
0	0										0		
0	180	-229	+03	+018	+09	-025	-09	-008	-09	-159	-08	90	270
1	181	231	02	014	09	040	09	005	09	151	08	91	271
2	182	233	02	009	09	055	09	-003	09	143	08	92	272
3	183	235	02	005	09	070	09	000	09	135	08	93	273
4	184	237	01	+001	09	085	09	+003	09	127	08	94	274
5	185	238	01	-003	09	100	09	006	09	118	08	95	275
6	186	239	+01	008	09	115	08	008	09	109	08	96	276
7	187	240	00	012	09	130	08	011	09	100	08	97	277
8	188	240	00	017	09	144	08	013	09	091	08	98	278
9	189	240	00	021	09	158	08	016	09	082	08	99	279
10	190	240	00	025	09	172	08	019	09	073	09	100	280
11	191	240	-01	029	09	186	08	021	09	064	09	101	281
12	192	239	01	033	09	200	08	024	09	055	09	102	282
13	193	238	01	037	08	213	08	026	08	046	09	103	283
14	194	236	02	041	08	226	08	029	08	036	09	104	284
15	195	235	02	045	08	239	08	032	08	026	09	105	285
16	196	233	02	049	08	251	07	034	08	017	09	106	286
17	197	231	02	053	08	263	07	037	08	-008	09	107	287
18	198	229	03	056	08	275	07	039	08	+002	09	108	288
19	199	226	03	060	08	287	07	042	08	012	09	109	289
20	200	223	03	065	08	299	07	044	07	022	09	110	290
21	201	220	03	069	07	310	07	046	07	032	09	111	291
22	202	216	04	073	07	320	06	048	07	041	09	112	292
23	203	212	04	076	07	330	06	050	07	050	09	113	293
24	204	208	04	079	07	340	06	052	07	060	08	114	294
25	205	204	04	082	07	350	06	054	06	070	08	115	295
26	206	200	05	085	06	359	05	055	06	079	08	116	296
27	207	196	05	088	06	368	05	057	06	088	08	117	297
28	208	190	05	091	06	376	05	059	06	097	08	118	298
29	209	185	05	094	05	383	04	061	06	106	08	119	299
30	210	179	05	097	05	390	04	063	05	115	08	120	300
31	211	173	06	100	05	396	04	064	05	124	08	121	301
32	212	168	06	103	05	402	03	065	05	133	08	122	302
33	213	162	06	105	04	408	03	067	04	142	07	123	303
34	214	155	06	107	04	413	03	068	04	150	07	124	304
35	215	148	06	109	04	418	03	070	04	158	07	125	305
36	216	141	07	111	04	423	02	071	04	165	07	126	306
37	217	133	07	113	03	427	02	072	03	172	06	127	307
38	218	126	07	115	03	430	01	073	03	179	06	128	308
39	219	119	07	116	03	432	01	074	03	186	06	129	309
40	220	113	07	117	03	434	-01	075	02	193	06	130	310
41	221	106	07	118	02	435	00	076	02	199	05	131	311
42	222	099	08	119	02	436	00	077	02	206	05	132	312
43	223	092	08	120	01	436	00	077	02	212	05	133	313
44	224	084	08	121	01	436	00	078	01	218	05	134	314
45	225	-075	-08	-122	+01	-436	+01	+078	-01	+224	-04	135	315

NOTE.—When the *Argument* is on the *right-hand* side of the Table, the sign of the correction must be changed.

TABLE,

Showing the *Correction* to be applied to the *preceding* Apparent Places of Five Polar Stars, for the terms of Nutation involving 2 ϵ .

Arg.		α Urs. Min.		51 Cephei.		σ Octantis.		δ Urs. Min.		λ Urs. Min.		Arg.	
ϵ		R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	ϵ	
0	0	"	"	"	"	"	"	"	"	"	"	0	
45	225	—'075	—'08	—'122	+ '01	—'436	+ '01	+ '078	—'01	+ '224	—'04	135	315
46	226	'067	'08	'123	'00	'435	'01	'078	—'01	'229	'04	136	316
47	227	'058	'08	'124	'00	'433	'02	'079	'00	'234	'04	137	317
48	228	'050	'08	'124	'00	'431	'02	'079	'00	'239	'04	138	318
49	229	'042	'08	'124	—'01	'428	'02	'078	'00	'244	'04	139	319
50	230	'034	'08	'124	'01	'425	'02	'078	+ '01	'249	'03	140	320
51	231	'026	'08	'123	'01	'421	'03	'078	'01	'253	'03	141	321
52	232	'017	'08	'123	'02	'417	'03	'078	'01	'256	'03	142	322
53	233	—'008	'08	'122	'02	'412	'03	'077	'02	'259	'02	143	323
54	234	'000	'08	'122	'02	'407	'04	'077	'02	'262	'02	144	324
55	235	+ '008	'08	'121	'02	'401	'04	'076	'02	'265	'02	145	325
56	236	'016	'08	'121	'03	'395	'04	'075	'03	'267	'02	146	326
57	237	'025	'08	'120	'03	'389	'04	'074	'03	'269	'01	147	327
58	238	'033	'08	'119	'03	'382	'05	'073	'03	'271	'01	148	328
59	239	'042	'08	'117	'04	'374	'05	'072	'03	'273	—'01	149	329
60	240	'050	'08	'115	'04	'365	'05	'071	'04	'274	'00	150	330
61	241	'058	'08	'114	'04	'356	'05	'070	'04	'275	'00	151	331
62	242	'066	'08	'112	'04	'347	'06	'069	'04	'275	'00	152	332
63	243	'074	'08	'110	'05	'338	'06	'068	'05	'275	+ '01	153	333
64	244	'082	'08	'108	'05	'328	'06	'066	'05	'275	'01	154	334
65	245	'090	'08	'106	'05	'318	'06	'064	'05	'275	'01	155	335
66	246	'097	'07	'102	'06	'307	'07	'062	'05	'274	'02	156	336
67	247	'105	'07	'100	'06	'296	'07	'061	'06	'272	'02	157	337
68	248	'112	'07	'098	'06	'284	'07	'060	'06	'270	'02	158	338
69	249	'120	'07	'095	'06	'272	'07	'058	'06	'268	'02	159	339
70	250	'127	'07	'093	'06	'261	'07	'056	'06	'266	'03	160	340
71	251	'134	'07	'090	'07	'249	'08	'054	'06	'263	'03	161	341
72	252	'141	'07	'087	'07	'237	'08	'052	'07	'260	'03	162	342
73	253	'148	'06	'084	'07	'224	'08	'050	'07	'257	'04	163	343
74	254	'154	'06	'080	'07	'211	'08	'048	'07	'254	'04	164	344
75	255	'161	'06	'077	'07	'197	'08	'046	'07	'250	'04	165	345
76	256	'167	'06	'074	'08	'183	'09	'045	'08	'246	'04	166	346
77	257	'173	'06	'070	'08	'169	'09	'043	'08	'242	'05	167	347
78	258	'178	'05	'066	'08	'155	'09	'040	'08	'237	'05	168	348
79	259	'184	'05	'062	'08	'141	'09	'037	'08	'232	'05	169	349
80	260	'189	'05	'059	'08	'126	'09	'034	'08	'227	'06	170	350
81	261	'194	'05	'055	'08	'111	'09	'031	'08	'221	'06	171	351
82	262	'199	'04	'050	'08	'096	'09	'030	'08	'215	'06	172	352
83	263	'204	'04	'047	'09	'081	'09	'027	'08	'209	'06	173	353
84	264	'207	'04	'043	'09	'066	'09	'024	'09	'203	'06	174	354
85	265	'212	'04	'039	'09	'051	'09	'022	'09	'196	'07	175	355
86	266	'216	'03	'035	'09	'036	'09	'020	'09	'189	'07	176	356
87	267	'220	'03	'030	'09	'021	'09	'017	'09	'182	'07	177	357
88	268	'223	'03	'026	'09	—'006	'09	'013	'09	'175	'07	178	358
89	269	'226	'03	'022	'09	+ '009	'09	'011	'09	'167	'07	179	359
90	270	+ '229	—'03	—'018	—'09	+ '025	+ '09	+ '008	+ '09	+ '159	+ '08	180	360

NOTE.—When the *Argument* is on the *right-hand* side of the Table, the sign of the correction must be changed.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
Jan. 1	10 Virginis -	6	12 2 44.33			N. 2 40		
	7 Virginis -	3½	12 12 57.94			N. 0 5		
	Moon II. L.	- -	12 8 48.97	118.98	62.55	S. 5 19 51.2	-660.3	
	Moon II. U.	22.4	12 32 51.64	121.57	63.25	7 30 45.3	647.6	
	↓ Virginis -	5	12 47 17.99			8 48		
	θ Virginis -	4½	13 2 55.42			S. 4 49		
2	↓ Virginis -	5	12 47 18.02			S. 8 48		
	θ Virginis -	4½	13 2 55.45			4 49		
	Moon II. L.	- -	12 57 28.90	124.75	64.10	9 38 24.4	-627.6	
	Moon II. U.	23.4	13 22 47.81	128.50	65.07	11 41 15.4	599.4	
	89 Virginis -	5	13 42 30.00			17 27		
	κ Virginis -	4½	14 5 39.32			S. 9 38		
3	89 Virginis -	5	13 42 30.03			S. 17 27		
	κ Virginis -	4½	14 5 39.33			9 38		
	Moon II. L.	- -	13 48 55.00	132.78	66.17	13 37 33.7	-562.0	
	Moon II. U.	24.5	14 15 56.31	137.50	67.35	15 25 21.1	514.1	
	α' Libræ - -	2½	14 43 21.92			15 28		
	ι' Libræ - -	4½	15 4 28.94			S. 19 16		
4	α' Libræ - -	2½	14 43 21.96			S. 15 28		
	ι' Libræ - -	4½	15 4 28.97			19 16		
	Moon II. L.	- -	14 43 56.19	142.52	68.59	17 2 26.7	-454.8	
	Moon II. U.	25.5	15 12 57.17	147.65	69.83	18 26 27.9	383.3	
	δ Scorpil - -	2½	15 52 17.94			22 14		
	β' Scorpil - -	2	15 57 32.05			S. 19 26		
5	Moon II. L.	- -	15 42 59.12	152.64	71.02	S. 19 34 55.9	-299.3	
	Moon II. U.	26.5	16 13 58.72	157.20	72.09	20 25 22.6	203.2	
6	Moon II. L.	- -	16 45 49.06	161.04	72.97	S. 20 55 30.7	-96.5	
	Moon II. U.	27.6	17 18 19.67	163.87	73.61	21 3 26.4	+18.4	
7	Moon II. L.	- -	17 51 17.13	165.49	73.97	S. 20 47 52.1	+137.8	
	Moon II. U.	28.6	18 24 26.25	165.80	74.03	20 8 18.3	257.5	
8	Moon II. L.	- -	18 57 31.48	164.86	73.80	S. 19 5 8.3	+373.0	
9	Moon I. U.	0.2	19 27 51.94	162.92	73.33	S. 17 39 40.2	+479.9	
	Moon I. L.	- -	20 0 10.62	160.08	72.66	15 53 59.8	574.5	
10	Moon I. U.	1.2	20 31 51.54	156.68	71.87	S. 13 50 51.6	+654.2	
	Moon I. L.	- -	21 2 49.91	153.03	71.01	11 33 24.6	717.4	
11	Moon I. U.	2.3	21 33 4.32	149.39	70.15	S. 9 5 0.2	+763.8	
	Moon I. L.	- -	22 2 36.14	145.97	69.34	6 29 0.8	793.4	
12	Moon I. U.	3.3	22 31 28.96	142.91	68.61	S. 3 48 40.6	+807.4	
	Moon I. L.	- -	22 59 47.78	140.31	68.00	S. 1 7 0.5	807.0	
	A Piscium -	5½	23 1 43.27			N. 1 23		
	γ Piscium -	4	23 10 7.19			N. 2 32		
13	A Piscium -	5½	23 1 43.26			N. 1 23		
	γ Piscium -	4	23 10 7.19			2 32		
	Moon I. U.	4.3	23 27 38.42	138.22	67.50	N. 1 33 15.2	+793.6	

MOON-CULMINATING STARS, 1864. 391

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Jan. 13	Moon I. L.	- -	^h ^m ^s 23 55 7.10	^s 136.65	^s 67.13	[°] ['] ["] N. 4 9 39.8	+768.7	
	♋ Piscium *	4½	23 32 57.79			4 53		
	♋ Piscium *	4	23 52 20.27			N. 6 7		
14	♋ Piscium *	4½	23 32 57.78			N. 4 53		
	♋ Piscium *	4	23 52 20.26			6 7		
	Moon I. U.	5.4	0 22 19.93	135.57	66.88	6 40 3.6	+733.7	
	Moon I. L.	- -	0 49 22.63	134.95	66.73	9 2 32.7	689.8	
	♋ Piscium *	4½	0 41 38.52			6 51		
	♋ Piscium *	4	0 55 54.15			N. 7 10		
15	♋ Piscium *	4½	0 41 38.51			N. 6 51		
	♋ Piscium *	4	0 55 54.14			7 10		
	Moon I. U.	6.4	1 16 20.27	134.72	66.68	11 15 27.4	+638.1	
	Moon I. L.	- -	1 43 17.01	134.79	66.70	13 17 20.4	579.7	
	♋ Piscium -	3½	1 24 13.65			14 39		
	♋ Piscium *	4	1 38 14.12			N. 8 28		
16	♋ Piscium -	3½	1 24 13.64			N. 14 39		
	♋ Piscium *	4	1 38 14.11			8 28		
	Moon I. U.	7.5	2 10 16.00	135.07	66.77	15 6 55.4	+515.3	
	Moon I. L.	- -	2 37 19.15	135.47	66.85	16 43 6.9	445.9	
	♋ Arietis -	5½	2 41 44.07			16 54		
	♋ Arietis -	4½	2 51 28.21			N. 20 48		
17	♋ Arietis -	5½	2 41 44.06			N. 16 54		
	♋ Arietis -	4½	2 51 28.20			20 48		
	Moon I. U.	8.5	3 4 27.20	135.87	66.93	18 4 59.1	+372.2	
	Moon I. L.	- -	3 31 39.57	136.17	66.98	19 11 46.9	295.3	
	♋ Tauri - -	3	3 39 26.28			23 41		
	33 Tauri - -	6	3 49 2.41			N. 22 47		
18	♋ Tauri - -	3	3 39 26.27			N. 23 41		
	33 Tauri - -	6	3 49 2.40			22 47		
	Moon I. U.	9.5	3 58 54.49	136.28	66.98	20 2 56.4	+216.0	
	Moon I. L.	- -	4 26 9.13	136.11	66.90	20 38 5.5	135.4	
	♋ Tauri - -	4	4 15 7.78			17 13		
	♋ Tauri - -	3½	4 20 42.83			N. 18 53		
19	♋ Tauri - -	4	4 15 7.77			N. 17 13		
	♋ Tauri - -	3½	4 20 42.83			18 53		
	Moon I. U.	10.6	4 53 19.86	135.62	66.73	20 57 5.1	+ 54.6	
	Moon I. L.	- -	5 20 22.57	134.77	66.48	20 59 59.3	- 25.3	
	♋ Tauri - -	3½	5 29 33.63			21 3		
	126 Tauri - -	5½	5 33 28.64			N. 16 28		
20	♋ Tauri - -	3½	5 29 33.62			N. 21 3		
	126 Tauri - -	5½	5 33 28.64			16 28		
	Moon I. U.	11.6	5 47 12.89	133.56	66.13	20 47 5.5	-103.2	
	Moon I. L.	- -	6 13 46.74	132.03	65.70	20 18 54.3	-178.1	
	♋ Geminor.	3	6 14 46.55			22 35		
	γ Geminor.	2½	6 29 53.83			N. 16 31		
21	♋ Geminor.	3	6 14 46.55			N. 22 35		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.						
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.		
Jan. 21	γ Geminor.	2½	h m s 6 29 53.83	s	s	N. 16 31			
	Moon I. v.	12.6	6 40 0.50	130.23	65.21	19 36 7.4	-249.0		
	Moon I. L.	-	7 5 51.37	128.23	64.66	18 39 36.9	315.2		
	ζ Geminor.	4	6 56 5.15			20 46			
	δ Geminor.	3½	7 12 2.59			N. 22 14			
	22	ζ Geminor.	4	6 56 5.15			N. 20 46		
		δ Geminor.	3½	7 12 2.59			22 14		
		Moon I. v.	13.7	7 31 17.46	126.11	64.09	17 30 22.8	-376.2	
		Moon I. L.	-	7 56 17.94	123.97	63.52	16 9 31.3	431.4	
		5 Cancri - -	6	7 53 47.66			16 50		
23	12 Cancri - -	6	8 1 8.83			N. 14 2			
	5 Cancri - -	6	7 53 47.67			N. 16 50			
	12 Cancri - -	6	8 1 8.84			14 2			
	Moon I. v.	14.7	8 20 53.04	121.90	62.96	14 38 12.8	-480.7		
	α Cancri - *	4	8 51 5.30			12 23			
24	κ Cancri - *	5	9 0 25.27			N. 11 13			
	α Cancri - *	4	8 51 5.31			N. 12 23			
	κ Cancri - *	5	9 0 25.29			11 13			
	Moon II. L.	-	8 47 8.86	119.88	62.45	12 57 39.6	-523.8		
	Moon II. v.	15.7	9 10 56.86	118.17	61.99	11 9 5.0	560.9		
25	6 Leonis - *	3½	9 33 56.10			10 31			
	18 Leonis - *	6	9 39 6.00			N. 12 26			
	6 Leonis - *	3½	9 33 56.11			N. 10 31			
	18 Leonis - *	6	9 39 6.02			12 26			
	Moon II. L.	-	9 34 25.94	116.74	61.62	9 13 41.7	-592.0		
26	Moon II. v.	16.8	9 57 39.86	115.64	61.34	7 12 41.9	617.0		
	43 Leonis - *	6	10 15 55.75			7 14			
	45 Leonis - *	6	10 20 30.07			N. 10 27			
	43 Leonis - *	6	10 15 55.77			N. 7 14			
	45 Leonis - *	6	10 20 30.09			10 27			
27	Moon II. L.	-	10 20 42.81	114.92	61.16	5 7 16.3	-636.3		
	Moon II. v.	17.8	10 43 39.63	114.62	61.11	N. 2 58 34.1	649.8		
	p ⁱ Leonis - -	5½	10 54 55.96			S. 1 45			
	φ Leonis - -	4½	11 9 46.99			S. 2 55			
	p ⁱ Leonis - -	5½	10 54 55.98			S. 1 45			
28	φ Leonis - -	4½	11 9 47.02			S. 2 55			
	Moon II. L.	-	11 6 35.53	114.77	61.18	N. 0 47 44.1	-657.6		
	Moon II. v.	18.8	11 29 36.06	115.40	61.38	S. 1 24 5.3	659.7		
	β Virginis -	3½	11 43 38.71			N. 2 32			
	10 Virginis -	6	12 2 45.11			N. 2 40			
29	β Virginis -	3½	11 43 38.73			N. 2 32			
	10 Virginis -	6	12 2 45.14			N. 2 40			
	Moon II. L.	-	11 52 47.10	116.53	61.72	S. 3 35 44.5	-655.9		
	Moon II. v.	19.9	12 16 14.74	118.17	62.19	5 46 2.1	-646.0		
	χ Virginis -	5	12 32 15.92			7 15			
30	ψ Virginis -	5	12 47 18.84			S. 8 48			

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	"	"	° ' "	"	
Jan. 29	χ Virginis -	5	12 32 15.95			S. 7 15		
	ψ Virginis -	5	12 47 18.87			8 48		
	Moon II. L.	- -	12 40 5.25	120.34	62.81	7 53 43.0	-629.7	
	Moon II. U.	20.9	13 4 24.91	123.03	63.56	9 57 27.2	606.5	
	α Virginis -	1	13 18 3.52			10 27		
	h Virginis -	5	13 25 50.13			S. 9 28		
	α Virginis -	1	13 18 3.55			S. 10 27		
	h Virginis -	5	13 25 50.16			9 28		
	Moon II. L.	- -	13 29 19.90	126.23	64.42	11 55 48.5	-575.8	
	Moon II. U.	21.9	13 54 56.12	129.89	65.39	13 47 12.4	536.8	
	κ Virginis -	4½	14 5 40.22			9 38		
	λ Virginis -	4½	14 11 46.80			S. 12 45		
31	κ Virginis -	4½	14 5 40.25			S. 9 38		
	λ Virginis -	4½	14 11 46.82			12 45		
	Moon II. L.	- -	14 21 18.80	133.95	66.45	15 29 55.6	-488.9	
	Moon II. U.	23.0	14 48 32.24	138.33	67.57	17 2 6.1	431.2	
	ι Libræ -	4½	15 4 29.87			19 16		
	ζ Libræ - -	4	15 20 36.65			S. 16 14		
	ι Libræ - -	4½	15 4 29.90			S. 19 16		
	ζ Libræ - -	4	15 20 36.68			16 14		
	Moon II. L.	- -	15 16 39.30	142.87	68.70	18 21 44.0	-363.3	
	Moon II. U.	24.0	15 45 40.95	147.39	69.81	19 26 43.4	284.8	
	β Scorp̄ii -	2	15 57 32.92			19 26		
	γ Scorp̄ii -	4	16 4 6.70			S. 19 6		
2	β Scorp̄ii -	2	15 57 32.95			S. 19 26		
	γ Scorp̄ii -	4	16 4 6.73			19 6		
	Moon II. L.	- -	16 15 35.80	151.69	70.85	20 14 58.1	-195.9	
	Moon II. U.	25.0	16 46 19.74	155.53	71.75	20 44 27.4	- 97.4	
	θ Ophiuchi -	3½	17 13 40.12			24 52		
	ξ Serpentis	3½	17 29 48.50			S. 15 19		
	θ Ophiuchi -	3½	17 13 40.15			S. 24 52		
	ξ Serpentis	3½	17 29 48.53			15 19		
	Moon II. L.	- -	17 17 45.83	158.68	72.48	20 53 25.2	+ 9.0	
	Moon II. U.	26.1	17 49 44.64	160.95	72.98	S. 20 40 29.8	121.0	
	4	Moon II. L.	- -	18 22 4.72	162.21	73.25	S. 20 4 53.1	+235.3
		Moon II. U.	27.1	18 54 33.70	162.44	73.28	19 6 29.6	348.1
5	Moon II. L.	- -	19 26 59.42	161.69	73.07	S. 17 45 59.7	+455.6	
	Moon II. U.	28.1	19 59 11.05	160.13	72.69	16 4 50.5	554.1	
6	Moon II. L.	- -	20 30 59.94	157.94	72.15	S. 14 5 11.4	+640.1	
	Moon II. U.	29.1	21 2 20.14	155.38	71.53	11 49 46.9	711.3	
7	Moon I. L.	- -	21 30 46.67	152.77	70.88	S. 9 21 45.6	+766.0	
8	Moon I. U.	0.7	22 1 3.67	150.08	70.23	S. 6 44 30.6	+803.5	
	Moon I. L.	- -	22 30 49.41	147.58	69.63	4 1 28.9	823.9	
9	Moon I. U.	1.8	23 0 6.75	145.34	69.11	S. 1 16 3.3	+827.7	
	Moon I. L.	- -	23 28 59.60	143.50	68.68	N. 1 28 31.5	+816.2	

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Feb. 10	Moon I.U.	2.8	h m s	s	s	° ' "	"	
	Moon I.L.	- -	23 57 32.35	142.02	68.34	N. 4 9 28.9	+790.7	
11	Moon I.U.	3.9	0 53 55.15	140.10	67.92	N. 9 9 57.0	+704.6	
	Moon I.L.	- -	1 21 52.93	139.57	67.82	11 25 15.3	647.1	
12	♈ Piscium -	3½	1 24 13.30			14 39		
	♈ Piscium *	4	1 38 13.76			N. 8 28		
13	♈ Piscium -	3½	1 24 13.28			N. 14 39		
	♈ Piscium *	4	1 38 13.74			8 28		
14	Moon I.U.	4.9	1 49 45.69	139.24	67.76	13 28 17.6	+582.2	
	Moon I.L.	- -	2 17 35.28	139.03	67.73	15 17 43.8	511.3	
15	♈ Arietis *	5½	2 17 32.90			10 0		
	♈ Arietis *	5½	2 29 14.22			N. 11 51		
16	♈ Arietis *	5½	2 17 32.88			N. 10 0		
	♈ Arietis *	5½	2 29 14.21			11 51		
17	Moon I.U.	6.0	2 45 22.54	138.84	67.69	16 52 29.1	+435.6	
	Moon I.L.	- -	3 13 7.29	138.60	67.64	18 11 45.7	356.7	
18	♈ Arietis -	4½	3 3 52.77			19 13		
	♈ Arietis -	4½	3 7 6.70			N. 20 32		
19	♈ Arietis -	4½	3 3 52.75			N. 19 13		
	♈ Arietis -	4½	3 7 6.68			20 32		
20	Moon I.U.	7.0	3 40 48.30	138.21	67.54	19 15 0.2	+275.5	
	Moon I.L.	- -	4 8 23.55	137.63	67.38	20 1 53.9	193.3	
21	♈ Tauri -	4	4 15 7.41			17 13		
	♈ Tauri -	3½	4 20 42.48			N. 18 53		
22	♈ Tauri -	4	4 15 7.40			N. 17 13		
	♈ Tauri -	3½	4 20 42.46			18 53		
23	Moon I.U.	8.0	4 35 50.37	136.80	67.16	20 32 20.8	+111.3	
	Moon I.L.	- -	5 3 5.63	135.70	66.86	20 46 28.6	+30.3	
24	♈ Tauri -	5	4 55 0.18			21 24		
	♈ Tauri -	5½	4 59 26.92			N. 18 28		
25	♈ Tauri -	5	4 55 0.16			N. 21 24		
	♈ Tauri -	5½	4 59 26.90			18 28		
26	Moon I.U.	9.1	5 30 6.10	134.33	66.48	20 44 36.1	-48.6	
	Moon I.L.	- -	5 56 48.71	132.73	66.03	20 27 13.0	124.7	
27	♈ Orionis -	5	5 55 26.85			19 41		
	♈ Orionis -	4½	5 59 50.65			N. 14 47		
28	♈ Orionis -	5	5 55 26.83			N. 19 41		
	♈ Orionis -	4½	5 59 50.64			14 47		
29	Moon I.U.	10.1	6 23 10.77	130.92	65.53	19 54 58.8	-197.1	
	Moon I.L.	- -	6 49 10.20	128.97	64.99	19 8 40.6	265.2	
30	♈ Geminor.	4	6 56 5.04			20 46		
	♈ Geminor.	3½	7 10 19.15			N. 16 47		
31	♈ Geminor.	4	6 56 5.02			N. 20 46		
	♈ Geminor.	3½	7 10 19.14			16 47		
32	Moon I.U.	11.1	7 14 45.67	126.94	64.42	18 9 12.4	-328.7	
	Moon I.L.	- -	7 39 56.65	124.90	63.84	N. 16 57 33.2	-387.0	

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.				
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.
			^h ^m ^s	"	"	N. [°] ' "	"
Feb. 18	6 Canis Min.*	5½	7 22 16.14			N. 12 17	
	68 Geminor.	5½	7 25 53.25			16 7	
19	6 Canis Min.*	5½	7 22 16.13			N. 12 17	
	68 Geminor.	5½	7 25 53.24			16 7	
	Moon I. U.	12.2	8 4 43.47	122.92	63.28	15 34 46.2	-439.9
	Moon I. L.	-	8 29 7.22	121.07	62.76	14 1 56.8	487.3
	29 Cancr. -	6	8 21 4.56			14 39	
	c' Cancr. - *	6	8 29 45.62			N. 10 8	
20	29 Cancr. -	6	8 21 4.56			N. 14 39	
	c' Cancr. - *	6	8 29 45.62			10 8	
	Moon I. U.	13.2	8 53 9.79	119.40	62.29	12 20 12.8	-529.0
	Moon I. L.	-	9 16 53.71	117.97	61.88	10 30 43.1	565.0
	c' Cancr. -	6	9 7 45.84			15 30	
	ξ Leonis - *	6	9 24 39.44			N. 11 54	
21	c' Cancr. -	6	9 7 45.84			N. 15 30	
	ξ Leonis - *	6	9 24 39.44			11 54	
	Moon I. U.	14.2	9 40 22.16	116.82	61.56	8 34 37.1	-595.1
	Moon I. L.	-	10 3 38.71	116.00	61.33	6 33 5.2	619.3
	π Leonis - *	5	9 53 4.09			8 41	
	14 Sextantis*	6	9 59 43.27			N. 6 16	
22	π Leonis - *	5	9 53 4.09			N. 8 41	
	14 Sextantis*	6	9 59 43.27			6 16	
	Moon II. U.	15.3	10 28 49.86	115.51	61.20	4 27 18.4	-637.6
	c Leonis - *	5	10 53 44.40			6 50	
	p' Leonis -	5	11 6 50.80			N. 0 40	
23	c Leonis - *	5	10 53 44.41			N. 6 50	
	p' Leonis -	5	11 6 50.81			0 40	
	Moon II. L.	-	10 51 55.16	115.44	61.18	2 18 27.7	-649.9
	Moon II. U.	16.3	11 15 1.96	115.77	61.28	N. 0 7 46.0	656.1
	ν Leonis -	4½	11 30 1.70			S. 0 5	
	β Virginis -	3½	11 43 39.24			N. 2 32	
24	ν Leonis -	4½	11 30 1.71			S. 0 5	
	β Virginis -	3½	11 43 39.25			N. 2 32	
	Moon II. L.	-	11 38 15.20	116.51	61.50	S. 2 3 33.1	-656.1
	Moon II. U.	17.3	12 1 39.93	117.68	61.84	4 14 13.5	649.6
	γ Virginis -	6	12 26 48.25			8 42	
	χ Virginis -	5	12 32 16.54			S. 7 15	
25	γ Virginis -	6	12 26 48.27			S. 8 42	
	χ Virginis -	5	12 32 16.56			7 15	
	Moon II. L.	-	12 25 21.31	119.29	62.30	6 22 57.2	-636.5
	Moon II. U.	18.4	12 49 24.55	121.32	62.87	8 28 22.7	616.5
	α Virginis -	1	13 18 4.22			10 27	
	h Virginis -	5	13 25 50.84			S. 9 28	
26	α Virginis -	1	13 18 4.24			S. 10 27	
	h Virginis -	5	13 25 50.86			9 28	
	Moon II. U.	-	12 12 54.66	122.77	62.55	S. 10 20 5.2	-580.2

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.				
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.
Feb. 26	Moon II. U.	19.4	^h 13 ^m 38 ^s 56.52	126.60	64.33	S. 12 23 34.9	-554.4
	κ Virginis -	4½	14 5 40.99			9 38	
	λ Virginis -	4½	14 11 47.57			S. 12 45	
	κ Virginis -	4½	14 5 41.01			S. 9 38	
	λ Virginis -	4½	14 11 47.60			12 45	
	Moon II. L.	- -	14 4 34.45	129.78	65.19	14 10 17.6	-511.4
	Moon II. U.	20.4	14 30 52.19	133.22	66.11	15 47 35.3	460.1
	α ^s Libræ - -	2½	14 43 23.65			15 28	
	ι ^s Libræ - -	4½	15 4 30.72			S. 19 16	
	α ^s Libræ - -	2½	14 43 23.68			S. 15 28	
	ι ^s Libræ - -	4½	15 4 30.75			19 16	
	Moon II. L.	- -	14 57 52.48	136.85	67.07	17 13 45.0	-400.1
	Moon II. U.	21.4	15 25 36.85	140.55	68.02	18 27 1.9	331.3
	δ Scorpis - -	2½	15 52 19.72			22 14	
Feb. 27	β ^s Scorpis - -	2	15 57 33.79			S. 19 26	
	δ Scorpis - -	2½	15 52 19.75			S. 22 14	
	β ^s Scorpis - -	2	15 57 33.82			19 26	
	Moon II. L.	- -	15 54 5.27	144.17	68.94	19 25 40.8	-253.8
	Moon II. U.	22.5	16 23 15.95	147.56	69.79	20 7 59.6	168.0
	η Ophiuchi -	2½	17 2 36.30			15 33	
	θ Ophiuchi -	3½	17 13 40.99			S. 24 52	
	η Ophiuchi -	2½	17 2 36.33			S. 15 33	
	θ Ophiuchi -	3½	17 13 41.02			24 52	
	Moon II. L.	- -	16 53 5.20	150.57	70.53	20 32 24.5	-75.0
	Moon II. U.	23.5	17 23 27.44	153.04	71.13	20 37 35.8	+24.0
	4 Sagittarii	5	17 51 30.65			23 48	
	μ ^s Sagittarii	4	18 5 38.87			S. 21 5	
	4 Sagittarii	5	17 51 30.68			S. 23 48	
Mar. 1	μ ^s Sagittarii	4	18 5 38.90			21 5	
	Moon II. L.	- -	17 54 15.56	154.86	71.56	20 22 33.4	+126.9
	Moon II. U.	24.5	18 25 21.29	155.97	71.81	19 46 42.7	231.6
	π Sagittarii	3	19 1 41.24			21 14	
	ρ ^s Sagittarii	4	19 13 47.64			S. 18 6	
	π Sagittarii	3	19 1 41.27			S. 21 14	
	ρ ^s Sagittarii	4	19 13 47.67			18 6	
	Moon II. L.	- -	18 56 35.99	156.36	71.88	18 49 59.2	+335.2
	Moon II. U.	25.6	19 27 51.21	156.08	71.78	17 32 52.7	435.0
	α ^s Capricorni	3½	20 10 30.81			12 58	
	ρ Capricorni	5	20 21 6.30			S. 18 16	
	Moon II. L.	- -	19 58 59.53	155.23	71.55	S. 15 56 26.7	+528.0
	Moon II. U.	26.6	20 29 55.06	153.97	71.21	14 2 19.1	611.5
	Moon II. L.	- -	21 0 33.68	152.44	70.81	S. 11 52 36.9	+683.3
	Moon II. U.	27.7	21 30 53.22	150.81	70.39	9 29 53.4	741.5
Mar. 2	Moon II. L.	- -	22 0 53.26	149.21	69.93	S. 6 57 1.1	+784.6
	Moon II. U.	28.7	22 30 34.90	147.76	69.61	S. 4 17 6.1	+811.9

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.				
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Mar. 7	Moon II. L.	- -	^h 23 ^m 0 ^s 32	146° 52	69° 29	S. 1° 33' 20" 2	+823' 1
8	Moon I. U.	0° 3	23 26 54' 31	145° 58	69° 05	N. 1° 11' 3" 8	+818' 3
	Moon I. L.	- -	23 55 56' 61	144° 85	68° 88	3 52 59' 0	798' 4
9	Moon I. U.	1° 4	0 24 51' 68	144° 37	68° 78	N. 6° 29' 28" 9	+764' 3
	Moon I. L.	- -	0 53 42' 19	144° 08	68° 73	8 57 52' 5	717' 6
10	Moon I. U.	2° 4	1 22 30' 08	143° 92	68° 71	N. 11° 15' 46" 4	+659' 7
	Moon I. L.	- -	1 51 16' 38	143° 80	68° 71	13 21 7' 6	592' 4
11	Moon I. U.	3° 5	2 20 1' 08	143° 64	68° 71	N. 15° 12' 15" 2	+517' 7
	Moon I. L.	- -	2 48 43' 12	143° 33	68° 66	16 47 50' 6	437' 4
	♈ Arietis -	4½	3 3 52' 34			19 13	
	♈ Arietis -	4½	3 7 6' 26			N. 20 32	
12	♈ Arietis -	4½	3 3 52' 33			N. 19 13	
	♈ Arietis -	4½	3 7 6' 24			20 32	
	Moon I. U.	4° 5	3 17 20' 37	142° 83	68° 57	18 6 57' 6	+353' 3
	Moon I. L.	- -	3 45 49' 93	142° 05	68° 40	19 9 1' 2	267' 1
	♉ Tauri -	3	3 39 25' 38			23 41	
	A' Tauri -	4½	3 56 40' 74			N. 21 42	
13	♉ Tauri -	3	3 39 25' 37			N. 23 41	
	A' Tauri -	4½	3 56 40' 73			21 42	
	Moon I. U.	5° 5	4 14 8' 23	140° 95	68° 14	19 53 47' 2	+180' 6
	Moon I. L.	- -	4 42 11' 46	139° 53	67° 80	20 21 19' 0	95' 0
	♉ Tauri -	1	4 28 8' 49			16 14	
	♉ Tauri -	4½	4 34 6' 58			N. 22 42	
14	♉ Tauri -	1	4 28 8' 48			N. 16 14	
	♉ Tauri -	4½	4 34 6' 55			22 42	
	Moon I. U.	6° 6	5 9 55' 87	137° 82	67° 38	20 31 56' 5	+ 11' 7
	Moon I. L.	- -	5 37 18' 00	135° 83	66° 87	20 26 13' 3	- 68' 3
	♈ Orionis -	4½	5 46 21' 52			20 15	
	♈ Orionis -	5	5 55 26' 38			N. 19 41	
15	♈ Orionis -	4½	5 46 21' 50			N. 20 15	
	♈ Orionis -	5	5 55 26' 36			19 41	
	Moon I. U.	7° 6	6 4 15' 00	133° 64	66° 31	20 4 53' 5	-144' 3
	Moon I. L.	- -	6 30 44' 87	131° 32	65° 70	19 28 49' 2	215' 6
	♊ Geminor.	3	6 14 45' 88			22 35	
	♊ Geminor.	2½	6 29 53' 23			N. 16 31	
16	♊ Geminor.	3	6 14 45' 86			N. 22 35	
	♊ Geminor.	2½	6 29 53' 21			16 31	
	Moon I. U.	8° 6	6 56 46' 50	128° 95	65° 06	18 38 58' 5	-282' 0
	Moon I. L.	- -	7 22 19' 75	126° 60	64° 43	17 36 23' 2	343' 0
	♊ Geminor.	3½	7 10 18' 74			16 47	
	68 Geminor.	5½	7 25 52' 89			N. 16 7	
17	♊ Geminor.	3½	7 10 18' 72			N. 16 47	
	68 Geminor.	5½	7 25 52' 87			16 7	
	Moon I. U.	9° 7	7 47 25' 38	124° 36	63° 80	16 22 6' 9	-398' 8
	Moon I. L.	- -	8 12 5' 00	122° 28	63° 22	N. 14 57 14' 3	-449' 1

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			^h ^m ^s	^s	^s	[°] ['] ["]	["]	
Mar. 17	ζ Cancri - -	5½	8 4 26.95			N. 18 3		
	η Cancri - -	6	8 24 52.82			20 54		
18	ζ Cancri - -	5½	8 4 26.93			N. 18 3		
	η Cancri - -	6	8 24 52.80			20 54		
	Moon I. U.	10.7	8 36 21.01	120.43	62.69	13 22 50.1	-494.0	
	Moon I. L.	- -	9 0 16.42	118.85	62.23	11 39 58.9	533.6	
	α Cancri - *	4	8 51 5.25			12 23		
	κ Cancri - *	5	9 0 25.27			N. 11 13		
19	α Cancri - *	4	8 51 5.23			N. 12 23		
	κ Cancri - *	5	9 0 25.26			11 13		
	Moon I. U.	11.7	9 23 54.73	117.59	61.86	9 49 45.5	-567.7	
	Moon I. L.	- -	9 47 19.93	116.67	61.57	7 53 15.0	596.5	
	π Leonis - *	5	9 53 4.04			8 41		
	A Leonis - *	5	10 0 43.59			N. 10 40		
20	π Leonis - *	5	9 53 4.04			N. 8 41		
	A Leonis - *	5	10 0 43.58			10 40		
	Moon I. U.	12.8	10 10 36.30	116.12	61.40	5 51 32.7	-619.7	
	Moon I. L.	- -	10 33 48.40	115.96	61.33	3 45 46.0	637.2	
	30 Sextantis	6	10 23 23.16			0 4		
	36 Sextantis	6	10 38 11.57			N. 3 12		
21	30 Sextantis	6	10 23 23.15			N. 0 4		
	36 Sextantis	6	10 38 11.57			3 12		
	Moon I. U.	13.8	10 57 0.95	116.20	61.37	N. 1 37 3.9	-648.8	
	Moon I. L.	- -	11 20 18.89	116.85	61.54	S. 0 33 21.7	654.4	
	φ Leonis - -	4½	11 9 47.59			2 55		
	ν Leonis - -	4½	11 30 1.88			S. 0 5		
22	φ Leonis - -	4½	11 9 47.59			S. 2 55		
	ν Leonis - -	4½	11 30 1.88			0 5		
	Moon I. U.	14.8	11 43 47.11	117.92	61.81	2 44 15.3	-653.5	
	Moon I. L.	- -	12 7 30.55	119 39	62.21	4 54 17.5	645.7	
	13 Virginis -	6	12 11 44.78			0 2		
	γ Virginis -	6	12 26 48.58			S. 8 42		
23	13 Virginis -	6	12 11 44.79			S. 0 2		
	γ Virginis -	6	12 26 48.59			8 42		
	Moon II. U.	15.9	12 33 39.47	121.35	62.72	7 2 4.1	-630.8	
	50 Virginis -	6	13 2 41.36			9 36		
	58 Virginis -	6	13 10 22.74			S. 9 50		
	50 Virginis -	6	13 2 41.37			S. 9 36		
24	58 Virginis -	6	13 10 22.75			9 50		
	Moon II. L.	- -	12 58 8.87	123.61	63.32	9 6 6.9	-608.3	
	Moon II. U.	16.9	13 23 7.41	126.20	64.03	11 4 51.9	577.8	
	85 Virginis -	6	13 38 18.94			15 5		
	89 Virginis -	5	13 42 32.20			S. 17 27		
	85 Virginis -	6	13 38 18.95			S. 15 5		
25	89 Virginis -	5	13 42 32.21			17 27		
	Moon II. L.	- -	13 48 38.83	129.08	64.79	S. 12 56 41.4	-539.0	

MOON-CULMINATING STARS, 1864. 399

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Mar. 25	Moon II. U.	17.9	^h 14 ^m 14 ^s 46.11	132.17	65.62	S. 14 39 53.7	-491.6	
	5 Libræ - -	6	14 38 30.87			14 53		
	α Libræ - -	2½	14 43 24.29			S. 15 29		
26	5 Libræ - -	6	14 38 30.89			S. 14 53		
	α Libræ - -	2½	14 43 24.31			15 29		
	Moon II. L.	- -	14 41 31.31	135.38	66.47	16 12 45.3	-435.5	
	Moon II. U.	19.0	15 8 55.24	138.60	67.32	17 33 31.4	370.8	
	5 Libræ - -	4	15 20 38.23			16 14		
	γ Libræ - -	4½	15 27 57.96			S. 14 20		
27	5 Libræ - -	4	15 20 38.25			S. 16 14		
	γ Libræ - -	4½	15 27 57.99			14 20		
	Moon II. L.	- -	15 36 57.38	141.72	68.14	18 40 30.7	-297.8	
	Moon II. U.	20.0	16 5 35.57	144.59	68.88	19 32 7.3	217.1	
	σ Scorpil - -	3½	16 12 58.31			25 16		
	α Scorpil - -	1½	16 21 7.01			S. 26 8		
28	σ Scorpil - -	3½	16 12 58.34			S. 25 16		
	α Scorpil - -	1½	16 21 7.04			26 8		
	Moon II. L.	- -	16 34 46.12	147.09	69.54	20 6 54.7	-129.8	
	Moon II. U.	21.0	17 4 23.83	149.10	70.05	20 23 41.0	-37.2	
	θ Ophiuchi -	3½	17 13 41.88			24 52		
	δ Ophiuchi -	5	17 18 6.28			S. 24 3		
29	θ Ophiuchi -	3½	17 13 41.91			S. 24 52		
	δ Ophiuchi -	5	17 18 6.31			24 3		
	Moon II. L.	- -	17 34 22.29	150.54	70.43	20 21 32.5	+59.1	
	Moon II. U.	22.1	18 4 34.36	151.37	70.65	19 59 57.3	156.9	
	ν Sagittarii	5	18 45 59.22			22 54		
	ξ Sagittarii	4	18 49 38.55			S. 21 17		
30	ν Sagittarii	5	18 45 59.25			S. 22 54		
	ξ Sagittarii	4	18 49 38.58			21 17		
	Moon II. L.	- -	18 34 52.74	151.60	70.71	19 18 48.2	+254.3	
	Moon II. U.	23.1	19 5 10.50	151.28	70.64	18 18 23.8	349.1	
	ε Sagittarii	5	19 34 45.69			16 26		
	f Sagittarii	5	19 38 27.01			S. 20 5		
31	ε Sagittarii	5	19 34 45.72			S. 16 26		
	f Sagittarii	5	19 38 27.04			20 5		
	Moon II. L.	- -	19 35 21.64	150.52	70.45	16 59 28.4	+439.1	
	Moon II. U.	24.1	20 5 21.59	149.43	70.17	15 23 11.3	522.4	
	ι Aquarii -	3½	20 40 19.80			9 59		
	μ Aquarii -	4½	20 45 19.99			S. 9 29		
Apr. 1	ι Aquarii -	3½	20 40 19.83			S. 9 59		
	μ Aquarii -	4½	20 45 20.02			9 29		
	Moon II. L.	- -	20 35 7.28	148.17	69.84	13 31 4.2	+597.2	
	Moon II. U.	25.2	21 4 37.46	146.87	69.49	11 24 59.2	+661.9	
	β Aquarii -	3	21 24 24.59			6 10		
	ξ Aquarii -	4½	21 30 31.40			S. 8 28		
2	β Aquarii -	3	21 24 24.62			S. 6 10		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
Apr. 2	♈ Aquarii -	4½	21 30 31.42			S. 8 28		
	Moon II.L.	-	21 33 52.35	145.64	69.16	9 7 5.1	+715.2	
	Moon II.U.	26.2	22 2 53.54	144.60	68.87	S. 6 39 45.2	756.0	
3	Moon II.L.	-	22 31 43.71	143.81	68.64	S. 4 5 34.6	+783.5	
	Moon II.U.	27.2	23 0 26.19	143.33	68.49	S. 1 27 16.3	797.2	
4	Moon II.L.	-	23 29 4.73	143.15	68.42	N. 1 12 21.3	+796.7	
	Moon II.U.	28.3	23 57 42.93	143.27	68.42	3 50 28.6	782.1	
5	Moon II.L.	-	0 26 24.14	143.64	68.50	N. 6 24 17.1	+753.7	
	Moon II.U.	29.3	0 55 10.88	144.18	68.63	8 51 4.9	712.2	
6	Moon I.L.	-	1 21 47.21	144.78	68.79	N.11 8 20.7	+658.5	
7	Moon I.U.	0.9	1 50 48.26	145.38	68.94	N.13 13 46.4	+594.1	
	Moon I.L.	-	2 19 55.75	145.84	69.07	15 5 22.8	520.6	
8	Moon I.U.	2.0	2 49 7.31	146.04	69.14	N.16 41 31.7	+439.9	
	Moon I.L.	-	3 18 19.18	145.88	69.13	18 0 59.0	354.0	
9	Moon I.U.	3.0	3 47 26.56	145.28	69.01	N.19 2 55.7	+265.1	
	Moon I.L.	-	4 16 23.98	144.21	68.78	19 46 57.7	175.3	
10	♉ Tauri -	3½	4 20 41.57			N.18 52		
	♊ Tauri -	1	4 28 8.07			16 14		
	Moon I.U.	4.0	4 45 5.69	142.66	68.42	20 13 5.4	+86.3	
	Moon I.L.	-	5 13 26.19	140.68	67.96	20 21 40.1	0.0	
	119 Tauri -	5½	5 24 15.70			18 29		
	ζ Tauri -	3½	5 29 32.37			N.21 3		
11	119 Tauri -	5½	5 24 15.69			N.18 29		
	ζ Tauri -	3½	5 29 32.36			21 3		
	Moon I.U.	5.1	5 41 20.64	138.34	67.40	20 13 21.5	-82.4	
	Moon I.L.	-	6 8 45.23	135.73	66.76	19 49 2.8	159.8	
	η Geminor.	3½	6 6 41.48			22 33		
	μ Geminor.	3	6 14 45.38			N.22 35		
12	η Geminor.	3½	6 6 41.46			N.22 33		
	μ Geminor.	3	6 14 45.37			22 35		
	Moon I.U.	6.1	6 35 37.39	132.95	66.07	19 9 47.3	-231.8	
	Moon I.L.	-	7 1 55.86	130.13	65.35	18 16 44.3	297.7	
	ζ Geminor.	4	6 56 4.11			20 46		
	λ Geminor.	3½	7 10 18.25			N.16 47		
13	ζ Geminor.	4	6 56 4.09			N.20 46		
	λ Geminor.	3½	7 10 18.24			16 47		
	Moon I.U.	7.2	7 27 40.76	127.37	64.63	17 11 6.0	-357.7	
	Moon I.L.	-	7 52 53.34	124.76	63.95	15 54 4.2	411.6	
	g Geminor.	5½	7 38 16.56			18 50		
	ζ Canceri -	5½	8 4 26.50			N.18 3		
14	g Geminor.	5½	7 38 16.55			N.18 50		
	ζ Canceri -	5½	8 4 26.48			18 3		
	Moon I.U.	8.2	8 17 35.95	122.39	63.31	14 26 50.5	-459.7	
	Moon I.L.	-	8 41 51.80	120.31	62.74	N.12 50 33.3	-502.2	

MOON-CULMINATING STARS, 1864. 40

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
Apr. 14	39 Canceri - -	6	^h 8 ^m 32 ^s 18.74	"	"	N. 20 29	"	
	♂ Canceri - -	4	8 36 59.22			18 39		
15	39 Canceri - -	6	8 32 18.73			N. 20 29		
	♂ Canceri - -	4	8 36 59.21			18 39		
	Moon I. U.	9.2	9 5 44.86	118.59	62.26	11 6 18.6	-539.3	
	Moon I. L.	- -	9 29 19.54	117.26	61.88	9 15 10.6	571.2	
	♂ Leonis - *	3½	9 33 55.93			10 31		
	18 Leonis - *	6	9 39 5.87			N. 12 26		
16	♂ Leonis - *	3½	9 33 55.91			N. 10 31		
	18 Leonis - *	6	9 39 5.85			12 26		
	Moon I. U.	10.3	9 52 40.81	116.35	61.60	7 18 11.5	-597.8	
	Moon I. L.	- -	10 15 53.80	115.89	61.45	5 16 23.3	619.4	
	45 Leonis - *	6	10 20 30.20			10 27		
	♂ Leonis - *	4	10 25 41.31			N. 10 0		
17	45 Leonis - *	6	10 20 30.19			N. 10 27		
	♂ Leonis - *	4	10 25 41.30			10 0		
	Moon I. U.	11.3	10 39 3.98	115.88	61.42	3 10 48.2	-635.6	
	Moon I. L.	- -	11 2 16.88	116.35	61.51	1 2 30.9	646.4	
	p [♂] Leonis - -	6	11 0 0.49			N. 2 42		
	♂ Leonis - -	4½	11 9 47.46			S. 2 55		
18	p [♂] Leonis - -	6	11 0 0.48			N. 2 42		
	♂ Leonis - -	4½	11 9 47.45			S. 2 55		
	Moon I. U.	12.3	11 25 38.12	117.27	61.73	1 7 21.2	-651.3	
	Moon I. L.	- -	11 49 13.28	118.67	62.08	S. 3 17 35.7	650.0	
	♂ Virginis -	3½	11 43 39.41			N. 2 32		
	10 Virginis -	6	12 2 45.96			N. 2 40		
19	♂ Virginis -	3½	11 43 39.41			N. 2 32		
	10 Virginis -	6	12 2 45.95			N. 2 40		
	Moon I. U.	13.4	12 13 7.92	120.51	62.56	S. 5 26 55.1	-642.0	
	Moon I. L.	- -	12 37 27.29	122.79	63.14	7 33 54.4	626.6	
	χ Virginis -	5	12 32 16.97			7 15		
	ψ Virginis -	5	12 47 20.00			S. 8 48		
20	χ Virginis -	5	12 32 16.96			S. 7 15		
	ψ Virginis -	5	12 47 20.00			8 48		
	Moon I. U.	14.4	13 2 16.34	125.45	63.83	9 37 1.8	-603.2	
	Moon I. L.	- -	13 27 39.50	128.43	64.61	11 34 37.8	571.3	
	α Virginis -	1	13 18 4.89			10 27		
	λ Virginis -	5	13 25 51.54			S. 9 28		
21	α Virginis -	1	13 18 4.89			S. 10 27		
	λ Virginis -	5	13 25 51.54			9 28		
	Moon I. U.	15.4	13 53 40.31	131.72	65.44	13 24 56.8	-530.3	
	λ Virginis -	4½	14 11 48.50			12 45		
22	2 Libræ - -	6	14 16 9.83			S. 11 5		
	λ Virginis -	4½	14 11 48.51			S. 12 45		
	2 Libræ - -	6	14 16 9.84			11 5		
	Moon II. L.	- -	14 22 34.01	135.29	66.32	S. 15 6 7.8	-479.9	

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of 's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of 's R. A. in 1 hour of Long.	Sidereal Time of 's Sem. pas. mer.	Declination.		
Apr. 22	Moon II. U.	16.5	^h 14 ^m 49 ^s 58.25	138.75	67.21	S. 16° 36' 15.8"	-419.8	
	γ Libræ - -	4½	15 27 58.49			14 20		
	κ Libræ - -	5	15 34 10.26			S. 19 14		
23	γ Libræ - -	4½	15 27 58.51			S. 14 20		
	κ Libræ - -	5	15 34 10.28			19 14		
	Moon II. L.	- -	15 18 3.44	142.09	68.06	17 53 26.7	-350.5	
	Moon II. U.	17.5	15 46 47.27	145.15	68.84	18 55 52.0	272.3	
	ν Scorpii - -	4	16 4 8.98			19 6		
	σ Scorpii - -	3½	16 12 58.97			S. 25 16		
24	ν Scorpii - -	4	16 4 9.00			S. 19 6		
	σ Scorpii - -	3½	16 12 58.99			25 16		
	Moon II. L.	- -	16 16 5.43	147.79	69.52	19 41 52.1	-186.5	
	Moon II. U.	18.5	16 45 51.95	149.85	70.06	20 10 3.7	-94.5	
	η Ophiuchi -	2½	17 2 37.85			15 33		
	θ Ophiuchi -	3½	17 13 42.65			S. 24 52		
25	η Ophiuchi -	2½	17 2 37.86			S. 15 33		
	θ Ophiuchi -	3½	17 13 42.68			24 52		
	Moon II. L.	- -	17 15 59.23	151.24	70.43	20 19 24.4	+1.6	
	Moon II. U.	19.6	17 46 18.75	151.89	70.62	20 9 16.8	99.8	
	μ' Sagittarii	4	18 5 40.55			21 5		
	λ Sagittarii	3	18 19 37.51			S. 25 30		
26	μ' Sagittarii	4	18 5 40.58			S. 21 5		
	λ Sagittarii	3	18 19 37.54			25 30		
	Moon II. L.	- -	18 16 41.82	151.83	70.64	19 39 31.4	+197.5	
	Moon II. U.	20.6	18 47 0.13	151.12	70.50	18 50 26.9	292.6	
	π Sagittarii	3	19 1 42.92			21 14		
	ρ' Sagittarii	4	19 13 49.28			S. 18 6		
27	π Sagittarii	3	19 1 42.95			S. 21 14		
	ρ' Sagittarii	4	19 13 49.31			18 6		
	Moon II. L.	- -	19 17 6.60	149.88	70.23	17 42 49.5	+382.7	
	Moon II. U.	21.6	19 46 55.80	148.27	69.85	16 17 49.5	466.0	
	α' Capricorni	3½	20 10 32.31			12 58		
	ρ Capricorni	5	20 21 7.81			S. 18 15		
28	α' Capricorni	3½	20 10 32.34			S. 12 58		
	ρ Capricorni	5	20 21 7.84			18 15		
	Moon II. L.	- -	20 16 24.20	146.45	69.42	14 36 57.2	+541.2	
	Moon II. U.	22.7	20 45 30.38	144.59	68.96	12 41 58.9	606.9	
	γ Aquarii -	4½	21 2 12.58			11 55		
	β Aquarii -	3	21 24 25.31			S. 6 10		
29	γ Aquarii -	4½	21 2 12.61			S. 11 55		
	β Aquarii -	3	21 24 25.34			6 10		
	Moon II. L.	- -	21 14 14.76	142.84	68.52	10 34 52.7	+662.3	
	Moon II. U.	23.7	21 42 39.41	141.32	68.13	8 17 46.1	+706.9	
	θ Aquarii -	4½	22 9 40.58			8 27		
	γ Aquarii -	3½	22 14 39.18			S. 2 4		
30	θ Aquarii -	4½	22 9 40.61			S. 8 27		

MOON-CULMINATING STARS, 1864. 403

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
Apr. 30	γ Aquarii -	3½	h m s	s	s	° ' "	"	
	Moon II. L.	- -	22 14 39.21			S. 2 4		
	Moon II. U.	24.7	22 10 47.70	140.13	67.81	5 52 52.7	+740.1	
	γ Piscium -	4	22 38 43.97	139.32	67.58	S. 3 22 31.0	761.6	
May 1	κ Piscium -	4½	23 10 7.94			N. 2 32		
	κ Piscium -	4½	23 19 58.62			N. 0 31		
	γ Piscium -	4	23 10 7.97			N. 2 32		
	κ Piscium -	4½	23 19 58.65			N. 0 31		
	Moon II. L.	- -	23 6 33.04	138.93	67.45	S. 0 49 3.1	+771.1	
	Moon II. U.	25.8	23 34 20.01	138.97	67.43	N. 1 45 7.7	768.6	
	2 Moon II. L.	- -	0 2 9.79	139.40	67.50	N. 4 17 35.4	+753.9	
	2 Moon II. U.	26.8	0 30 6.82	140.16	67.67	6 45 54.2	727.2	
	3 Moon II. L.	- -	0 58 14.69	141.19	67.89	N. 9 7 41.4	+688.7	
	3 Moon II. U.	27.8	1 26 35.89	142.37	68.16	11 20 37.4	638.8	
	4 Moon II. L.	- -	1 55 11.54	143.57	68.45	N. 13 22 31.3	+578.5	
	4 Moon II. U.	28.9	2 24 1.04	144.65	68.70	15 11 23.3	508.7	
	5 Moon II. L.	- -	2 53 2.20	145.48	68.90	N. 16 45 29.2	+431.1	
	6 Moon I. U.	0.5	3 19 53.06	145.91	69.02	N. 18 3 24.4	+347.3	
	6 Moon I. L.	- -	3 49 4.33	145.88	69.02	19 4 7.0	259.3	
	7 Moon I. U.	1.5	4 18 11.77	145.27	68.88	N. 19 47 0.5	+169.4	
	7 Moon I. L.	- -	4 47 8.40	144.07	68.61	20 11 53.3	+ 79.6	
	8 Moon I. U.	2.6	5 15 47.27	142.31	68.20	N. 20 18 58.3	- 8.2	
	8 Moon I. L.	- -	5 44 1.98	140.06	67.66	20 8 50.9	92.2	
	9	Moon I. U.	3.6	6 11 47.20	137.42	67.03	N. 19 42 24.2	-171.3
Moon I. L.		- -	6 38 59.06	134.53	66.33	19 0 44.2	244.3	
γ Geminor.		2½	6 29 52.38			16 31		
ε Geminor.*		3½	6 37 40.53			N. 13 2		
10 γ Geminor.		2½	6 29 52.37			N. 16 31		
ε Geminor.*		3½	6 37 40.52			13 2		
Moon I. U.		4.6	7 5 35.32	131.51	65.59	18 5 6.6	-310.9	
Moon I. L.		- -	7 31 35.24	128.49	64.83	16 56 50.3	370.7	
6 CanisMin.*		5½	7 22 14.90			12 17		
g Geminor.		5½	7 38 16.15			N. 18 50		
11		6 CanisMin.*	5½	7 22 14.89			N. 12 17	
		g Geminor.	5½	7 38 16.14			18 50	
	Moon I. U.	5.7	7 56 59.65	125.61	64.11	15 37 15.8	-423.9	
	Moon I. L.	- -	8 21 50.74	122.95	63.42	14 7 41.3	470.7	
	θ Cancri - -	6	8 23 51.85			18 33		
	δ Cancri - -	4	8 36 58.80			N. 18 39		
	12 θ Cancri - -	6	8 23 51.84			N. 18 33		
	δ Cancri - -	4	8 36 58.79			18 39		
12	Moon I. U.	6.7	8 46 11.71	120.60	62.81	12 29 22.6	-511.4	
	Moon I. L.	- -	9 10 6.74	118.64	62.29	10 43 30.7	-546.3	
	κ Cancri - *	5	9 0 24.48			11 13		
	λ Leonis - *	6	9 24 41.83			N. 10 19		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
May 13	κ Cancri - *	5	h m s 9 0 24.46	"	"	N. 11 13	"	"
	h Leonis - *	6	9 24 41.82			10 19		
	Moon I. U.	7.7	9 33 40.62	117.09	61.88	8 51 12.6	-575.8	
	Moon I. L.	- -	9 56 58.71	116.01	61.58	6 53 32.1	600.1	
	κ Leonis - *	5	9 53 3.38			8 41		
	A Leonis - *	5	10 0 42.94			N. 10 40		
14	κ Leonis - *	5	9 53 3.37			N. 8 41		
	A Leonis - *	5	10 0 42.93			10 40		
	Moon I. U.	8.8	10 20 6.77	115.42	61.41	4 51 30.4	-619.4	
	Moon I. L.	- -	10 43 10.78	115.34	61.38	2 46 7.4	633.6	
	55 Leonis - -	6	10 48 44.94			N. 1 28		
	p' Leonis - -	5½	10 54 56.03			S. 1 45		
15	55 Leonis - -	6	10 48 44.93			N. 1 28		
	p' Leonis - -	5½	10 54 56.02			S. 1 45		
	Moon I. U.	9.8	11 6 16.98	115.78	61.48	N. 0 38 24.0	-642.8	
	Moon I. L.	- -	11 29 31.70	116.76	61.73	S. 1 30 37.2	646.5	
	e Leonis - -	5	11 23 24.35			2 15		
	v Leonis - -	4½	11 30 1.57			S. 0 5		
16	e Leonis - -	5	11 23 24.34			S. 2 15		
	v Leonis - -	4½	11 30 1.56			0 5		
	Moon I. U.	10.8	11 53 1.29	118.26	62.11	3 39 49.6	-644.5	
	Moon I. L.	- -	12 16 52.10	120.29	62.63	5 48 0.9	636.2	
	q Virginis -	6	12 26 48.52			8 42		
	x Virginis -	5	12 32 16.85			S. 7 15		
17	q Virginis -	6	12 26 48.51			S. 8 42		
	x Virginis -	5	12 32 16.85			7 15		
	Moon I. U.	11.9	12 41 10.26	122.82	63.28	7 53 51.1	-620.9	
	Moon I. L.	- -	13 6 1.60	125.81	64.04	9 55 52.1	597.9	
	50 Virginis -	6	13 2 41.47			9 36		
	α Virginis -	1	13 18 4.88			S. 10 27		
18	50 Virginis -	6	13 2 41.47			S. 9 36		
	α Virginis -	1	13 18 4.88			10 27		
	Moon I. U.	12.9	13 31 31.37	129.21	64.90	11 52 25.9	-566.3	
	Moon I. L.	- -	13 57 43.99	132.94	65.84	13 41 45.3	525.3	
	κ Virginis -	4½	14 5 41.98			9 38		
	λ Virginis -	4½	14 11 48.62			S. 12 45		
19	κ Virginis -	4½	14 5 41.98			S. 9 38		
	λ Virginis -	4½	14 11 48.63			12 45		
	Moon I. U.	13.9	14 24 42.69	136.87	66.81	15 21 54.4	-474.4	
	Moon I. L.	- -	14 52 29.08	140.86	67.80	16 50 50.7	413.2	
	α' Libræ - -	2½	14 43 24.93			15 29		
	ι' Libræ - -	4½	15 4 32.19			S. 19 16		
20	α' Libræ - -	2½	14 43 24.94			S. 15 29		
	ι' Libræ - -	4½	15 4 32.19			19 16		
	Moon I. U.	15.0	15 21 2.87	144.73	68.75	18 6 29.9	-341.6	
	Moon I. L.	- -	15 50 21.39	148.28	69.61	19 6 50.2	-260.2	
	β' Scorpis - -	2	15 57 35.60			S. 19 26		

MOON-CULMINATING STARS, 1864. 405

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
May 20	♏ Scorpii - -	4	^h 16 ^m 4 ^s 9' 41	"	"	S. 19° 6'	"	"
21	β ¹ Scorpii - -	2	15 57 35' 61			S. 19 26		
	♏ Scorpii - -	4	16 4 9' 42			19 6		
	Moon II. U.	16 ^o	16 22 40' 25	151° 42	70° 35	19 50 0' 2	- 170° 1	
	♏ Ophiuchi -	2½	17 2 38' 38			15 33		
	♏ Ophiuchi -	3½	17 13 43' 27			S. 24 52		
22	♏ Ophiuchi -	2½	17 2 38' 40			S. 15 33		
	♏ Ophiuchi -	3½	17 13 43' 28			24 52		
	Moon II. L.	- -	16 53 11' 74	153° 70	70° 91	20 14 26' 3	- 73° 2	
	Moon II. U.	17 ^o	17 24 5' 59	155° 12	71° 28	20 19 0' 3	+ 28° 1	
	♐ Sagittarii	5	17 51 33' 03			23 48		
	μ ¹ Sagittarii	4	18 5 41' 24			S. 21 5		
23	♐ Sagittarii	5	17 51 33' 05			S. 23 48		
	μ ¹ Sagittarii	4	18 5 41' 27			21 5		
	Moon II. L.	- -	17 55 11' 06	155° 63	71° 42	20 3 5' 2	+ 131° 1	
	Moon II. U.	18 ^o	18 26 17' 14	155° 23	71° 36	19 26 39' 0	+ 232° 7	
	♐ Sagittarii	4	18 49 40' 18			21 17		
	♐ Sagittarii	4	18 56 35' 19			S. 21 56		
24	♐ Sagittarii	4	18 49 40' 21			S. 21 17		
	♐ Sagittarii	4	18 56 35' 22			21 56		
	Moon II. L.	- -	18 57 13' 51	154° 04	71° 11	18 30 16' 2	+ 330° 1	
	Moon II. U.	19 ^o	19 27 51' 45	152° 19	70° 70	17 15 3' 1	+ 420° 7	
	♑ Capricorni	3½	20 10 33' 12			12 58		
	♑ Capricorni	5	20 21 8' 64			S. 18 15		
25	♑ Capricorni	3½	20 10 33' 15			S. 12 58		
	♑ Capricorni	5	20 21 8' 68			18 15		
	Moon II. L.	- -	19 58 4' 38	149° 91	70° 18	15 42 34' 0	+ 502° 5	
	Moon II. U.	20 ^o	20 27 48' 34	147° 40	69° 59	13 54 44' 8	+ 573° 9	
	♒ Aquarii -	4½	20 45 21' 60			9 29		
	♒ Aquarii -	4½	21 2 13' 41			S. 11 55		
26	♒ Aquarii -	4½	20 45 21' 63			S. 9 29		
	♒ Aquarii -	4½	21 2 13' 44			11 55		
	Moon II. L.	- -	20 57 1' 81	144° 86	68° 98	11 53 45' 3	+ 634° 1	
	Moon II. U.	21 ^o	21 25 45' 55	142° 47	68° 41	9 41 53' 8	+ 682° 5	
	♒ Aquarii -	5	21 56 19' 03			2 49		
	♒ Aquarii -	4½	22 9 41' 39			S. 8 27		
27	♒ Aquarii -	5	21 56 19' 06			S. 2 49		
	♒ Aquarii -	4½	22 9 41' 42			8 27		
	Moon II. L.	- -	21 54 2' 23	140° 37	67° 90	7 21 32' 3	+ 719° 1	
	Moon II. U.	22 ^o	22 21 56' 00	138° 67	67° 47	4 55 2' 6	+ 743° 9	
	♒ Aquarii -	5	22 30 44' 67			4 56		
	♒ Aquarii -	4½	23 7 18' 51			S. 6 47		
28	♒ Aquarii -	5	22 30 44' 70			S. 4 56		
	♒ Aquarii -	4½	23 7 18' 54			6 47		
	Moon II. L.	- -	22 49 31' 98	137° 41	67° 15	S. 2 24 44' 4	+ 757° 2	
	Moon II. U.	23 ^o	23 16 55' 85	136° 65	66° 95	N. 0 7 5' 5	+ 759° 2	

406 MOON-CULMINATING STARS, 1864.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	"	"	° ' "	"	
May 28	κ Piscium -	4½	23 19 59.39			N. 0 31		
	ι Piscium *	4½	23 32 59.08			4 54		
29	κ Piscium -	4½	23 19 59.42			N. 0 31		
	ι Piscium *	4½	23 32 59.11			4 54		
	Moon II. L.	- -	23 44 13.52	136.38	66.86	2 38 13.1	+750.2	
	Moon II. U.	24.3	0 11 30.77	136.57	66.89	5 6 28.3	730.5	
	δ Piscium *	4½	0 41 39.10			6 51		
	ε Piscium *	4	0 55 54.58			N. 7 10		
30	δ Piscium *	4½	0 41 39.13			N. 6 51		
	ε Piscium *	4	0 55 54.61			7 10		
	Moon II. L.	- -	0 38 52.86	137.18	67.01	7 29 43.6	+700.3	
	Moon II. U.	25.3	1 6 24.29	138.11	67.22	9 45 55.7	660.0	
	η Piscium -	3½	1 24 13.83			14 39		
	θ Piscium *	4	1 38 14.16			N. 8 28		
31	Moon II. L.	- -	1 34 8.52	139.29	67.48	N. 11 53 5.3	+610.0	
	Moon II. U.	26.4	2 2 7.59	140.57	67.78	13 49 19.1	550.8	
June 1	Moon II. L.	- -	2 30 22.06	141.83	68.06	N. 15 32 51.9	+483.3	
	Moon II. U.	27.4	2 58 50.69	142.91	68.31	17 2 10.0	408.6	
2	Moon II. L.	- -	3 27 30.58	143.68	68.48	N. 18 15 54.0	+327.9	
	Moon II. U.	28.4	3 56 17.12	144.00	68.54	19 13 2.7	243.0	
3	Moon II. L.	- -	4 25 4.49	143.80	68.48	N. 19 52 55.8	+155.6	
4	Moon I. U.	0.0	4 51 29.33	143.05	68.29	N. 20 15 15.2	+ 67.7	
	Moon I. L.	- -	5 19 58.42	141.70	67.96	20 20 6.1	- 18.8	
5	Moon I. U.	1.0	5 48 7.98	139.81	67.49	N. 20 7 55.7	-102.2	
	Moon I. L.	- -	6 15 52.04	137.47	66.91	19 39 30.4	181.1	
6	Moon I. U.	2.1	6 43 5.80	134.78	66.26	N. 18 55 51.9	-254.3	
	Moon I. L.	- -	7 9 46.05	131.90	65.54	17 58 13.5	321.0	
7	Moon I. U.	3.1	7 35 51.12	128.95	64.81	N. 16 47 55.1	-380.9	
	Moon I. L.	- -	8 1 20.96	126.05	64.09	15 26 19.9	433.8	
	ι Cancri -	6	7 49 17.26			16 9		
	8 Cancri - *	6	7 57 31.04			N. 13 30		
8	ι Cancri -	6	7 49 17.25			N. 16 9		
	8 Cancri - *	6	7 57 31.03			13 30		
	Moon I. U.	4.1	8 26 16.89	123.32	63.40	13 54 50.6	-479.9	
	Moon I. L.	- -	8 50 41.59	120.85	62.77	12 14 47.3	519.5	
	α Cancri - *	4	8 51 4.16			12 23		
	κ Cancri - *	5	9 0 24.19			N. 11 13		
9	α Cancri - *	4	8 51 4.15			N. 12 23		
	κ Cancri - *	5	9 0 24.18			11 13		
	Moon I. U.	5.2	9 14 38.66	118.73	62.23	10 27 26.7	-552.9	
	Moon I. L.	- -	9 38 12.58	117.00	61.79	8 34 1.1	-580.5	
θ Leonis - *	θ Leonis - *	3½	9 33 55.22			10 31		
	π Leonis - *	5	9 53 3.06			N. 8 41		
10	θ Leonis - *	3½	9 33 55.21			N. 10 31		

MOON-CULMINATING STARS, 1864. 407

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	"	"	° ' "	"	
June 10	♋ Leonis - *	5	9 53 3.05			N. 8 41		
	Moon I. U.	6.2	10 1 28.49	115.73	61.47	6 35 37.6	-602.6	
	Moon I. L.	-	10 24 32.01	114.94	61.27	4 33 20.0	619.5	
	45 Leonis - *	6	10 20 29.53			10 27		
	♏ Leonis - *	4	10 25 40.65			N. 10 0		
11	45 Leonis - *	6	10 20 29.52			N. 10 27		
	♏ Leonis - *	4	10 25 40.64			10 0		
	Moon I. U.	7.2	10 47 29.10	114.66	61.21	2 28 10.2	-631.3	
	Moon I. L.	-	11 10 26.07	114.92	61.29	N. 0 21 7.8	638.2	
	♏ Leonis - -	4½	11 9 46.89			S. 2 55		
	♏ Leonis - -	5	11 23 24.06			S. 2 15		
12	♏ Leonis - -	4½	11 9 46.88			S. 2 55		
	♏ Leonis - -	5	11 23 24.05			2 15		
	Moon I. U.	8.3	11 33 29.43	115.73	61.52	1 46 46.8	-640.0	
	Moon I. L.	-	11 56 45.81	117.10	61.89	3 54 30.9	636.4	
	B. A. C. 4006	6	11 44 7.65			4 35		
	13 Virginis -	6	12 11 44.39			S. 0 2		
13	B. A. C. 4006	6	11 44 7.64			S. 4 35		
	13 Virginis -	6	12 11 44.38			0 2		
	Moon I. U.	9.3	12 20 21.92	119.02	62.40	6 0 57.6	-627.0	
	Moon I. L.	-	12 44 24.44	121.50	63.06	8 4 54.2	611.3	
	28 Virginis -	6	12 34 58.55			6 45		
	♏ Virginis -	5	12 47 19.71			S. 8 48		
14	28 Virginis -	6	12 34 58.54			S. 6 45		
	♏ Virginis -	5	12 47 19.70			8 48		
	Moon I. U.	10.3	13 8 59.86	124.50	63.83	10 5 0.1	-588.4	
	Moon I. L.	-	13 34 14.26	127.98	64.72	11 59 45.1	557.7	
	♏ Virginis -	1	13 18 4.71			10 27		
	♏ Virginis -	5	13 25 51.40			S. 9 28		
15	♏ Virginis -	1	13 18 4.70			S. 10 27		
	♏ Virginis -	5	13 25 51.39			9 28		
	Moon I. U.	11.4	14 0 13.06	131.88	65.71	13 47 28.9	-518.1	
	Moon I. L.	-	14 27 0.70	136.10	66.76	15 26 20.5	468.8	
	♏ Virginis -	4½	14 11 48.56			12 45		
	♏ Libræ - -	2½	14 43 24.94			S. 15 29		
16	♏ Virginis -	4½	14 11 48.55			S. 12 45		
	♏ Libræ - -	2½	14 43 24.93			15 29		
	Moon I. U.	12.4	14 54 40.10	140.49	67.84	16 54 19.9	-409.3	
	Moon I. L.	-	15 23 12.29	144.86	68.89	18 9 20.9	339.1	
	♏ Libræ - -	4	15 20 39.14			16 14		
	♏ Libræ - -	4½	15 27 58.92			S. 14 20		
17	♏ Libræ - -	4	15 20 39.13			S. 16 14		
	♏ Libræ - -	4½	15 27 58.92			14 20		
	Moon I. U.	13.4	15 52 35.88	149.02	69.88	19 9 15.7	-258.3	
	Moon I. L.	-	16 22 46.82	152.71	70.75	19 52 1.1	-167.7	
	♏ Scorpii -	3½	16 12 59.67			25 16		
	♏ Scorpii -	1½	16 21 8.45			S. 26 8		

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
June 18	♏ Scorpii -	3½	h m s 16 12 59.67	"	"	S. 25 16	"	
	α Scorpii -	1½	16 21 8.46			26 8		
	Moon I. U.	14.5	16 53 38.16	155.71	71.46	20 15 49.6	- 69.1	
	Moon I. L.	-	17 25 0.42	157.83	71.94	20 19 16.4	+ 35.4	
	η Ophiuchi-	2½	17 2 38.72			15 33		
	θ Ophiuchi-	3½	17 13 43.65			S. 24 52		
	19 η Ophiuchi-	2½	17 2 38.72			S. 15 33		
	θ Ophiuchi	3½	17 13 43.66			24 52		
	Moon II. U.	15.5	17 59 6.55	158.97	72.20	20 1 29.6	+ 142.6	
	21 Sagittarii	5	18 17 18.99			20 37		
20	B.A.C. 6279	4½	18 21 30.68			S. 14 39		
	21 Sagittarii	5	18 17 19.00			S. 20 37		
	B.A.C. 6279	4½	18 21 30.69			14 39		
	Moon II. L.	-	18 30 55.44	159.00	72.21	19 22 15.4	+ 249.3	
	Moon II. U.	16.5	19 2 38.78	158.07	72.01	18 22 2.8	351.8	
	e Sagittarii	5	19 34 47.99			16 26		
	f Sagittarii	5	19 38 29.37			S. 20 5		
	21 e Sagittarii	5	19 34 47.99			S. 16 26		
	f Sagittarii	5	19 38 29.38			20 5		
	Moon II. L.	-	19 34 5.76	156.31	71.62	17 2 1.0	+ 447.0	
21	Moon II. U.	17.6	20 5 7.79	153.95	71.07	15 23 54.6	532.2	
	β Capricorni	3	20 13 25.58			15 12		
	α Aquarii -	3½	20 40 22.15			S. 9 59		
	22 β Capricorni	3	20 13 25.61			S. 15 12		
	α Aquarii -	3½	20 40 22.17			9 59		
	Moon II. L.	-	20 35 39.10	151.23	70.44	13 29 56.7	+ 605.3	
	Moon II. U.	18.6	21 5 36.65	148.37	69.78	11 22 39.1	665.3	
	β Aquarii -	3	21 24 26.93			6 10		
	ε Aquarii -	4½	21 30 33.75			S. 8 28		
	23 β Aquarii -	3	21 24 26.95			S. 6 10		
23	ε Aquarii -	4½	21 30 33.77			8 28		
	Moon II. L.	-	21 35 0.12	145.58	69.12	9 4 43.9	+ 711.6	
	Moon II. U.	19.6	22 3 51.47	143.03	68.52	6 38 56.3	744.1	
	ζ Aquarii -	3½	22 21 52.48			0 43		
	η Aquarii -	3½	22 28 24.81			S. 0 49		
	24 ζ Aquarii -	3½	22 21 52.51	-		S. 0 43		
	η Aquarii -	3½	22 28 24.84			0 49		
	Moon II. L.	-	22 32 14.31	140.85	67.99	4 7 59.2	+ 763.3	
	Moon II. U.	20.7	23 0 13.53	139.10	67.57	S. 1 34 28.8	769.8	
	κ Piscium -	4½	23 20 0.23			N. 0 31		
25	ι Piscium *	4½	23 32 59.91			N. 4 54		
	κ Piscium -	4½	23 20 0.26			N. 0 31		
	ι Piscium *	4½	23 32 59.94			4 54		
	Moon II. L.	-	23 27 54.73	137.85	67.27	0 59 7.3	+ 764.3	
	Moon II. U.	21.7	23 55 23.75	137.08	67.08	3 30 30.0	+ 747.7	
	45 Piscium *	6	0 18 43.56			6 56		
	δ Piscium *	4½	0 41 39.91			N. 6 51		

MOON-CULMINATING STARS, 1864. 409

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
June 26	45 Piscium *	6	h m s 0 18 43.60	"	"	N. 6 56 "	"	
	δ Piscium *	4½	0 41 39.94			6 51		
	Moon II. L.	- -	0 22 46.41	136.78	67.00	5 57 29.6	+720.6	
	Moon II. U.	22.7	0 50 8.06	136.90	67.02	8 18 5.7	683.8	
	ζ Piscium *	4½	1 6 39.76			6 51		
	η Piscium -	3½	1 24 14.63			N. 14 39		
	ζ Piscium *	4½	1 6 39.79			N. 6 51		
	η Piscium -	3½	1.24 14.66			14 39		
	Moon II. L.	- -	1 17 33.38	137.37	67.13	10 30 25.4	+638.0	
	Moon II. U.	23.8	1 45 6.03	138.10	67.29	12 32 44.1	583.8	
	ξ Arietis - *	5½	2 17 33.69			10 0		
	31 Arietis - *	5½	2 29 14.90			N. 11 51		
	ξ Arietis - *	5½	2 17 33.72			N. 10 0		
	31 Arietis - *	5½	2 29 14.93			11 51		
27	Moon II. L.	- -	2 12 48.51	138.99	67.50	14 23 25.6	+521.9	
	Moon II. U.	24.8	2 40 41.91	139.90	67.70	16 1 3.2	453.2	
	α Arietis - -	4½	2 51 28.31			20 48		
	δ Arietis - -	4½	3 3 53.16			N. 19 13		
	α Arietis - -	4½	2 51 28.34			N. 20 48		
	δ Arietis - -	4½	3 3 53.19			19 13		
	Moon II. L.	- -	3 8 45.76	140.71	67.87	17 24 20.3	+378.7	
	Moon II. U.	25.9	3 36 58.10	141.30	67.99	N. 18 32 14.0	299.5	
	Moon II. L.	- -	4 5 15.51	141.54	68.02	N. 19 23 55.3	+216.9	
	Moon II. U.	26.9	4 33 33.26	141.34	67.94	19 58 52.6	132.4	
	Moon II. L.	- -	5 1 45.83	140.67	67.75	N. 20 16 52.8	+ 47.7	
	Moon II. U.	28.0	5 29 47.26	139.49	67.44	20 18 1.8	- 35.8	
	Moon II. L.	- -	5 57 31.70	137.84	67.00	N. 20 2 44.0	-116.5	
	Moon II. U.	29.0	6 24 53.76	135.78	66.48	19 31 41.5	193.1	
29	Moon II. L.	- -	6 51 49.04	133.39	65.86	N. 18 45 49.7	-264.5	
	Moon I. U.	0.5	7 16 3.95	130.91	65.20	N. 17 46 16.4	-329.9	
	Moon I. L.	- -	7 41 58.83	128.23	64.52	16 34 16.9	388.8	
	Moon I. U.	1.5	8 7 21.43	125.55	63.83	N. 15 11 10.9	-441.0	
	Moon I. L.	- -	8 32 12.55	123.00	63.18	13 38 19.8	486.4	
	Moon I. U.	2.6	8 56 34.14	120.64	62.58	N. 11 57 4.7	-525.0	
	Moon I. L.	- -	9 20 29.13	118.58	62.05	10 8 44.2	557.4	
	Moon I. U.	3.6	9 44 1.35	116.85	61.61	N. 8 14 32.5	-583.6	
	Moon I. L.	- -	10 7 15.21	115.53	61.29	6 15 41.9	603.9	
	π Leonis - *	5	9 53 2.88			8 42		
	A Leonis - *	5	10 0 42.42			N. 10 40		
	π Leonis - *	5	9 53 2.87			N. 8 42		
	A Leonis - *	5	10 0 42.42			10 40		
	Moon I. U.	4.6	10 30 15.76	114.64	61.08	4 13 19.8	-618.9	
Moon I. L.	- -	10 53 8.44	114.22	61.00	2 8 30.7	-628.5		
July 1	d Leonis - *	5	10 53 33.83			N. 4 21		

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
July 8	p ^r Leonis - -	5	^h 11 ^m 6 ^s 49' 96	"	"	N. 0 40 "	"	
9	d Leonis - *	5	10 53 33' 82			N. 4 21		
	p ^r Leonis - -	5	11 6 49' 95			0 40		
	Moon I. U.	5' 7	11 15 59' 03	114' 30	61' 05	N. 0 2 17' 4	-632' 9	
	Moon I. L.	- -	11 38 53' 59	114' 88	61' 23	S. 2 4 18' 8	632' 2	
	v Leonis - -	4½	11 30 1' 01			S. 0 5		
	β Virginis -	3½	11 43 38' 64			N. 2 32		
10	v Leonis - -	4½	11 30 1' 00			S. 0 5		
	β Virginis -	3½	11 43 38' 63			N. 2 32		
	Moon I. U.	6' 7	12 1 58' 37	116' 00	61' 56	S. 4 10 15' 0	-626' 3	
	Moon I. L.	- -	12 25 19' 80	117' 65	62' 03	6 14 26' 8	614' 8	
	γ Virginis -	6	12 26 47' 99			8 42		
	χ Virginis -	5	12 32 16' 33			S. 7 15		
11	γ Virginis -	6	12 26 47' 98			S. 8 42		
	χ Virginis -	5	12 32 16' 32			7 15		
	Moon I. U.	7' 7	12 49 4' 29	119' 85	62' 64	8 15 46' 2	-597' 4	
	Moon I. L.	- -	13 13 18' 26	122' 57	63' 37	10 12 58' 5	573' 5	
	α Virginis -	1	13 18 4' 44			10 27		
	h Virginis -	5	13 25 51' 13			S. 9 28		
12	α Virginis -	1	13 18 4' 42			S. 10 27		
	h Virginis -	5	13 25 51' 12			9 28		
	Moon I. U.	8' 8	13 38 7' 87	125' 78	64' 22	12 4 42' 4	-542' 6	
	Moon I. L.	- -	14 3 38' 89	129' 45	65' 17	13 49 28' 2	503' 7	
	κ Virginis -	4½	14 5 41' 66			9 38		
	λ Virginis -	4½	14 11 48' 32			S. 12 45		
13	κ Virginis -	4½	14 5 41' 65			S. 9 38		
	λ Virginis -	4½	14 11 48' 31			12 45		
	Moon I. U.	9' 8	14 29 56' 29	133' 50	66' 21	15 25 36' 5	-456' 2	
	Moon I. L.	- -	14 57 3' 97	137' 81	67' 28	16 51 18' 4	399' 2	
	α' Libræ - -	2½	14 43 24' 74			15 29		
	ι' Libræ - -	4½	15 4 32' 06			S. 19 16		
14	α' Libræ - -	2½	14 43 24' 73			S. 15 29		
	ι' Libræ - -	4½	15 4 32' 05			19 16		
	Moon I. U.	10' 8	15 25 4' 26	142' 25	68' 36	18 4 38' 2	-332' 4	
	Moon I. L.	- -	15 53 57' 56	146' 61	69' 42	19 3 35' 3	255' 4	
	δ Scorpil - -	2½	15 52 21' 60			22 14		
	β' Scorpil - -	2	15 57 35' 69			S. 19 26		
15	δ Scorpil - -	2½	15 52 21' 60			S. 22 14		
	β' Scorpil - -	2	15 57 35' 68			19 26		
	Moon I. U.	11' 9	16 23 41' 74	150' 69	70' 38	19 46 9' 3	-168' 6	
	Moon I. L.	- -	16 54 12' 07	154' 26	71' 21	20 10 28' 3	73' 1	
	η Ophiuchi -	2½	17 2 38' 76			15 33		
	θ Ophiuchi -	3½	17 13 43' 73			S. 24 52		
16	η Ophiuchi -	2½	17 2 38' 76			S. 15 33		
	θ Ophiuchi -	3½	17 13 43' 73			24 52		
	Moon I. U.	12' 9	17 25 21' 19	157' 12	71' 86	S. 20 14 57' 2	+ 29' 4	

MOON-CULMINATING STARS, 1864. 411

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
July 16	Moon I.L.	- -	^h 17 ^m 56 ^s 59.32	^s 159.08	^s 72.30	^o S. 19 58 26.4	+136.3	
	4 Sagittarii	5	17 51 33.67			23 48		
	μ Sagittarii	4	18 5 41.94			S. 21 5		
17	4 Sagittarii	5	17 51 33.67			S. 23 48		
	μ Sagittarii	4	18 5 41.95			21 5		
	Moon I.U.	13.9	18 28 55.16	160.05	72.50	19 20 21.7	+244.4	
	Moon I.L.	- -	19 0 56.72	160.04	72.47	18 20 49.0	350.3	
	ξ Sagittarii	4	18 49 41.08			21 17		
	π Sagittarii	3	19 1 44.66			S. 21 14		
18	ξ Sagittarii	4	18 49 41.09			S. 21 17		
	π Sagittarii	3	19 1 44.67			21 14		
	Moon I.U.	15.0	19 32 52.60	159.13	72.25	17 0 38.3	+450.2	
	α Capricorni	3½	20 10 34.32			12 58		
	ρ Capricorni	5	20 21 9.91			S. 18 15		
	19	α Capricorni	3½	20 10 34.33			S. 12 58	
ρ Capricorni		5	20 21 9.93			18 15		
Moon II.L.		- -	20 6 56.58	157.40	71.85	15 21 20.8	+540.9	
	Moon II.U.	16.0	20 38 12.54	155.20	71.33	13 25 4.3	619.6	
	β Aquarii -	3	21 24 27.53			6 10		
	ξ Aquarii -	4½	21 30 34.36			S. 8 28		
20	β Aquarii -	3	21 24 27.55			S. 6 10		
	ξ Aquarii -	4½	21 30 34.38			8 28		
	Moon II.L.	- -	21 9 0.07	152.70	70.74	11 14 25.3	+684.4	
	Moon II.U.	17.0	21 39 16.94	150.12	70.14	8 52 18.5	734.1	
	θ Aquarii -	4½	22 9 42.91			8 27		
	γ Aquarii -	3½	22 14 41.49			S. 2 4		
21	θ Aquarii -	4½	22 9 42.93			S. 8 27		
	γ Aquarii -	3½	22 14 41.51			2 4		
	Moon II.L.	- -	22 9 3.25	147.63	69.55	6 21 48.5	+768.3	
	Moon II.U.	18.1	22 38 21.10	145.39	69.03	S. 3 46 1.4	787.1	
	γ Piscium -	4	23 10 10.31			N. 2 33		
	κ Piscium -	4½	23 20 0.98			N. 0 31		
22	γ Piscium -	4	23 10 10.33			N. 2 33		
	κ Piscium -	4½	23 20 1.00			N. 0 31		
	Moon II.L.	- -	23 7 13.96	143.48	68.58	S. 1 7 57.7	+791.1	
	Moon II.U.	19.1	23 35 46.27	141.97	68.24	N. 1 29 31.1	781.5	
	α Piscium *	4	23 52 23.00			6 7		
	d Piscium *	5½	0 13 39.24			N. 7 26		
23	α Piscium *	4	23 52 23.02			N. 6 7		
	d Piscium *	5½	0 13 39.27			7 26		
	Moon II.L.	- -	0 4 2.87	140.87	67.98	4 3 47.1	+759.2	
	Moon II.U.	20.2	0 32 8.62	140.16	67.82	6 32 25.9	+725.5	
	ε Piscium *	4	0 55 56.24			7 10		
	e Piscium *	5½	1 1 24.86			N. 4 56		
24	ε Piscium *	4	0 55 56.27			N. 7 10		
	e Piscium *	5½	1 1 24.89			N. 4 56		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.				
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.
July 24	Moon II. L.	- -	h m s				
	Moon II. U.	21.2	1 0 8.10	139.81	67.75	N. 8 53 18.3	+681.6
	♋ Piscium *	4	1 28 5.23	139.76	67.75	11 4 29.0	628.8
	♋ Ceti - *	4½	1 38 15.78			8 28	
	♋ Ceti - *	4½	2 5 50.27			N. 8 12	
	♋ Piscium *	4	1 38 15.81			N. 8 28	
	♋ Ceti - *	4½	2 5 50.30			8 12	
	Moon II. L.	- -	1 56 3.09	139.91	67.79	13 4 17.5	+568.1
	Moon II. U.	22.2	2 24 3.60	140.18	67.86	14 51 15.9	500.7
	♈ Arietis - -	4½	2 51 29.16			20 48	
	♈ Arietis - -	4½	3 3 53.99			N.19 13	
	♈ Arietis - -	4½	2 51 29.19			N.20 48	
	♈ Arietis - -	4½	3 3 54.02			19 13	
	Moon II. L.	- -	2 52 7.57	140.47	67.92	16 24 11.0	+427.7
	Moon II. U.	23.3	3 20 14.49	140.66	67.96	17 42 2.5	350.3
	♉ Tauri - -	3	3 39 26.76			23 41	
	♉ Tauri - -	4½	3 56 41.92			N.21 42	
	♉ Tauri - -	3	3 39 26.79			N.23 41	
	♉ Tauri - -	4½	3 56 41.95			21 42	
	Moon II. L.	- -	3 48 22.61	140.65	67.93	18 44 4.9	+269.7
	Moon II. U.	24.3	4 16 29.11	140.38	67.84	19 29 47.8	187.2
	♉ Tauri - -	1	4 28 9.34			16 14	
	♉ Tauri - -	4½	4 34 7.40			N.22 42	
	♉ Tauri - -	1	4 28 9.37			N.16 14	
	♉ Tauri - -	4½	4 34 7.43			22 42	
	Moon II. L.	- -	4 44 30.22	139.75	67.66	19 58 55.5	+104.1
	Moon II. U.	25.3	5 12 21.67	138.75	67.38	20 11 29.0	+ 21.7
	♊ Tauri - -	3½	5 29 33.14			21 3	
	♊ Orionis -	4½	5 46 21.65			N.20 15	
29	♊ Tauri - -	3½	5 29 33.17			N.21 3	
	♊ Orionis -	4½	5 46 21.67			20 15	
	Moon II. L.	- -	5 39 58.86	137.38	67.00	20 7 44.0	- 58.8
	Moon II. U.	26.4	6 7 17.44	135.66	66.53	N.19 48 10.6	136.1
	Moon II. L.	- -	6 34 13.49	133.64	65.99	N.19 13 32.9	-209.4
	Moon II. U.	27.4	7 0 43.87	131.40	65.38	18 24 45.3	277.7
	Moon II. L.	- -	7 26 46.40	129.01	64.74	N.17 22 51.6	-340.3
	Moon II. U.	28.5	7 52 19.98	126.58	64.09	16 9 2.4	396.9
	Moon II. L.	- -	8 17 24.56	124.20	63.45	N.14 44 31.7	-447.2
	Moon II. U.	29.5	8 42 1.11	121.93	62.84	13 10 36.4	491.0
	Moon I. L.	- -	9 4 6.96	119.94	62.29	N.11 28 33.2	-528.5
	Moon I. U.	0.9	9 27 54.90	118.10	61.80	N. 9 39 38.5	-559.6
	Moon I. L.	- -	9 51 22.67	116.58	61.40	7 45 6.9	584.7
	Moon I. U.	1.9	10 14 34.12	115.40	61.10	N. 5 46 10.3	-603.8
	Moon I. L.	- -	10 37 33.69	114.60	60.91	3 43 58.9	617.2
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
Aug. 1	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. L.	- -	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0
	Moon I. U.	3.0	11 0 26.12	114.21	60.83	N. 1 39 40.5	-625.0

MOON-CULMINATING STARS, 1864. 413

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Aug. 5	Moon I. L.	- -	^h 11 ^m 23 ^s 16.46	114.25	60.87	S. 0 25 38.7	-627.3	
6	Moon I. U.	4.0	11 46 9.99	114.75	61.04	S. 2 30 53.4	-624.2	
	Moon I. L.	- -	12 9 12.24	115.70	61.34	S. 4 34 58.0	615.6	
10	Virginis -	6	12 2 44.98			N. 2 40		
7	7 Virginis -	3½	12 12 58.69			N. 0 5		
	10 Virginis -	6	12 2 44.97			N. 2 40		
	7 Virginis -	3½	12 12 58.70			N. 0 5		
	Moon I. U.	5.0	12 32 28.78	117.13	61.76	S. 6 36 46.4	-601.5	
	Moon I. L.	- -	12 56 5.22	119.03	62.30	8 35 9.8	581.4	
	ψ Virginis -	5	12 47 19.12			8 48		
	θ Virginis -	4½	13 2 56.72			S. 4 49		
8	ψ Virginis -	5	12 47 19.11			S. 8 48		
	θ Virginis -	4½	13 2 56.71			4 49		
	Moon I. U.	6.1	13 20 7.22	121.39	62.97	10 28 55.9	-555.2	
	Moon I. L.	- -	13 44 40.22	124.18	63.73	12 16 48.2	522.4	
	λ Virginis -	5	13 25 50.79			9 28		
	m Virginis -	6	13 34 30.95			S. 8 1		
9	λ Virginis -	5	13 25 50.78			S. 9 28		
	m Virginis -	6	13 34 30.93			8 1		
	Moon I. U.	7.1	14 9 49.26	127.39	64.59	13 57 23.9	-482.4	
	Moon I. L.	- -	14 35 38.88	130.94	65.53	15 29 14.1	434.7	
	5 Libræ - -	6	14 38 30.92			14 53		
	α' Libræ - -	2½	14 43 24.38			S. 15 29		
10	5 Libræ - -	6	14 38 30.90			S. 14 53		
	α' Libræ - -	2½	14 43 24.37			15 29		
	Moon I. U.	8.1	15 2 12.78	134.75	66.51	16 50 44.0	-378.9	
	Moon I. L.	- -	15 29 33.47	138.72	67.52	18 0 12.8	314.5	
	γ' Libræ - -	4	15 20 38.65			16 14		
	γ Libræ - -	4½	15 27 58.45			S. 14 20		
11	γ' Libræ - -	4	15 20 38.63			S. 16 14		
	γ Libræ - -	4½	15 27 58.44			14 20		
	Moon I. U.	9.2	15 57 42.00	142.70	68.51	18 55 56.1	-241.3	
	Moon I. L.	- -	16 26 37.54	146.53	69.44	19 36 10.1	159.6	
	σ Scorpil - -	3½	16 12 59.29			25 16		
	α Scorpil - -	1½	16 21 8.10			S. 26 8		
12	σ Scorpil - -	3½	16 12 59.28			S. 25 16		
	α Scorpil - -	1½	16 21 8.09			26 8		
	Moon I. U.	10.2	16 56 17.29	150.03	70.27	19 59 14.9	- 69.9	
	Moon I. L.	- -	17 26 36.29	153.04	70.97	20 3 41.8	+ 26.4	
	θ Ophiuchi	3½	17 13 43.50			24 52		
	δ Ophiuchi	5	17 18 7.94			S. 24 3		
13	θ Ophiuchi	3½	17 13 43.49			S. 24 52		
	δ Ophiuchi	5	17 18 7.92			24 3		
	Moon I. U.	11.2	17 57 27.59	155.40	71.50	19 48 21.1	+127.7	
	Moon I. L.	- -	18 28 42.78	157.00	71.85	19 12 28.2	+231.4	
	15 Sagittarii	5	18 7 10.00			S. 20 46		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Declination.	Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.				
			h m s	"	"	° ' "	"	"	
Aug. 13	21 Sagittarii	5	18 17 19.10			S. 20 37			
14	15 Sagittarii	5	18 7 9.99			S. 20 46			
	21 Sagittarii	5	18 17 19.09			20 37			
	Moon I. U.	12.3	19 0 12.48	157.82	72.01	18 15 50.8		+334.6	
	Moon I. L.	-	19 31 47.32	157.86	71.99	16 58 53.7		434.1	
	d Sagittarii	5	19 9 44.76			19 11			
	ρ Sagittarii	4	19 13 51.07			S. 18 6			
15	d Sagittarii	5	19 9 44.75			S. 19 11			
	ρ Sagittarii	4	19 13 51.06			18 6			
	Moon I. U.	13.3	20 3 18.55	157.84	71.81	15 22 40.3		+526.7	
	Moon I. L.	-	20 34 38.88	156.08	71.51	13 28 51.7		609.5	
	τ Capricorni	5	20 31 44.06			15 26			
	ε Aquarii -	3½	20 40 22.89			S. 9 59			
16	τ Capricorni	5	20 31 44.06			S. 15 26			
	ε Aquarii -	3½	20 40 22.89			9 59			
	Moon I. U.	14.3	21 5 42.99	154.56	71.13	11 19 42.5		+679.8	
	Moon I. L.	-	21 36 27.47	152.84	70.72	8 57 54.4		735.6	
	β Aquarii -	3	21 24 27.84			6 10			
	ξ Aquarii -	4½	21 30 34.69			S. 8 28			
17	β Aquarii -	3	21 24 27.84			S. 6 10			
	ξ Aquarii -	4½	21 30 34.70			8 28			
	Moon II. U.	15.4	22 9 11.64	151.03	70.29	6 26 29.6		+775.8	
	ζ Aquarii -	3½	22 21 53.61			0 43			
	η Aquarii -	3½	22 28 25.96			S. 0 49			
18	ζ Aquarii -	3½	22 21 53.62			S. 0 43			
	η Aquarii -	3½	22 28 25.97			0 49			
	Moon II. L.	-	22 39 13.92	149.38	69.90	3 48 40.5		+799.6	
	Moon II. U.	16.4	23 8 57.60	147.94	69.56	S. 1 7 43.2		807.2	
	κ Piscium -	4½	23 20 1.55			N. 0 31			
	ι Piscium *	4½	23 33 1.27			N. 4 54			
19	κ Piscium -	4½	23 20 1.56			N. 0 31			
	ι Piscium *	4½	23 33 1.28			4 54			
	Moon II. L.	-	23 38 25.40	146.74	69.29	1 33 9.2		+799.0	
	Moon II. U.	17.5	0 7 40.51	145.82	69.08	4 10 53.8		776.1	
	δ Piscium *	4½	0 41 41.44			6 51			
	ε Piscium *	4	0 55 56.94			N. 7 10			
20	δ Piscium *	4½	0 41 41.46			N. 6 51			
	ε Piscium *	4	0 55 56.96			7 10			
	Moon II. L.	-	0 36 46.16	145.16	68.95	6 42 41.3		+739.7	
	Moon II. U.	18.5	1 5 45.26	144.72	68.87	9 5 59.8		691.5	
	η Piscium -	3½	1 24 16.26			14 39			
	ο Piscium *	4	1 38 16.53			N. 8 28			
21	η Piscium -	3½	1 24 16.28			N. 14 39			
	ο Piscium *	4	1 38 16.55			8 28			
	Moon II. L.	-	1 34 40.12	144.45	68.83	11 18 36.6		+633.0	
	Moon II. U.	19.5	2 3 32.23	144.25	68.81	N. 13 18 38.7		+566.0	

MOON-CULMINATING STARS, 1864. 415

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	"
Aug. 21	* Arietis -	5½	2 41 45.93			N. 16 54		
	* Arietis -	4½	2 51 30.01			20 48		
22	* Arietis -	5½	2 41 45.96			N. 16 54		
	* Arietis -	4½	2 51 30.03			20 48		
	Moon II. L.	- -	2 32 22.05	144.05	68.78	15 4 33.9		+492.2
	Moon II. U.	20.6	3 1 9.00	143.75	68.72	16 35 10.1		413.2
17	Tauri - -	4	3 36 51.79			23 41		
	* Tauri - -	3	3 39 27.63			N. 23 41		
23	17 Tauri - -	4	3 36 51.82			N. 23 41		
	* Tauri - -	3	3 39 27.66			23 41		
	Moon II. L.	- -	3 29 51.48	143.29	68.62	17 49 35.5		+330.6
	Moon II. U.	21.6	3 58 26.95	142.58	68.45	18 47 16.9		246.1
	* Tauri - -	3½	4 20 43.75			18 53		
	* Tauri - -	1	4 28 10.15			N. 16 14		
24	* Tauri - -	3½	4 20 43.79			N. 18 53		
	* Tauri - -	1	4 28 10.18			16 14		
	Moon II. L.	- -	4 26 52.18	141.58	68.19	19 27 59.4		+161.1
	Moon II. U.	22.7	4 55 3.55	140.26	67.86	19 51 45.5		+76.9
119	Tauri - -	5½	5 24 17.27			18 29		
	* Tauri - -	3½	5 29 33.92			N. 21 3		
25	119 Tauri - -	5½	5 24 17.30			N. 18 29		
	* Tauri - -	3½	5 29 33.95			21 3		
	Moon II. L.	- -	5 22 57.22	138.63	67.43	19 58 53.2		- 5.2
	Moon II. U.	23.7	5 50 29.65	136.73	66.93	19 49 53.5		84.1
	* Geminor.	3	6 14 46.50			22 35		
	* Geminor.	2½	6 29 53.66			N. 16 31		
26	* Geminor.	3	6 14 46.53			N. 22 35		
	* Geminor.	2½	6 29 53.69			16 31		
	Moon II. L.	- -	6 17 37.69	134.58	66.36	19 25 30.0		-159.0
	Moon II. U.	24.7	6 44 18.96	132.28	65.73	18 46 35.3		229.2
	* Geminor.	4	6 56 4.82			20 46		
	* Geminor.	3½	7 12 2.16			N. 22 14		
27	* Geminor.	4	6 56 4.85			N. 20 46		
	* Geminor.	3½	7 12 2.19			22 14		
	Moon II. L.	- -	7 10 31.87	129.87	65.08	17 54 9.4		-294.2
	Moon II. U.	25.8	7 36 15.69	127.44	64.41	16 49 17.6		353.5
	3 Cancri - -	6	7 53 1.57			17 41		
	8 Cancri - *	6	7 57 31.80			N. 13 30		
28	3 Cancri - -	6	7 53 1.59			N. 17 41		
	8 Cancri - *	6	7 57 31.82			13 30		
	Moon II. L.	- -	8 1 30.70	125.08	63.76	15 33 8.9		-407.0
	Moon II. U.	26.8	8 26 17.97	122.83	63.14	N. 14 6 54.5		454.5
29	Moon II. L.	- -	8 50 39.34	120.77	62.55	N. 12 31 46.0		-496.0
	Moon II. U.	27.8	9 14 37.39	118.95	62.04	10 48 55.3		531.5
30	Moon II. L.	- -	9 38 15.18	117.40	61.60	N. 8 59 34.2		-561.1
	Moon II. U.	28.9	10 1 36.24	116.17	61.25	N. 7 4 52.9		-584.8

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Aug. 31	Moon II. L.	- -	^h ^m ^s 10 24 44.54	^s 115.28	^s 60.99	N. [°] ['] ["] 5 6 1.6	-602.8	
Sept. 1	Moon I. U.	0.2	10 45 42.55	114.76	60.84	N. 3 4 9.6	-615.0	
	Moon I. L.	- -	11 8 38.22	114.58	60.80	N. 1 0 25.4	621.5	
2	Moon I. U.	1.3	11 31 34.11	114.80	60.87	S. 1 4 2.6	-622.2	
	Moon I. L.	- -	11 54 34.98	115.41	61.06	3 8 5.4	617.3	
3	Moon I. U.	2.3	12 17 45.53	116.42	61.36	S. 5 10 33.6	-606.4	
	Moon I. L.	- -	12 41 10.52	117.82	61.76	7 10 16.0	589.6	
4	Moon I. U.	3.3	13 4 54.69	119.60	62.28	S. 9 6 0.0	-566.7	
	Moon I. L.	- -	13 29 2.50	121.76	62.89	10 56 30.7	537.3	
5	α Virginis -	1	13 18 3.83			10 27		
	λ Virginis -	5	13 25 50.50			S. 9 28		
	α Virginis -	1	13 18 3.83			S. 10 27		
	λ Virginis -	5	13 25 50.49			9 28		
6	Moon I. U.	4.4	13 53 38.26	124.25	63.58	12 40 29.4	-501.4	
	Moon I. L.	- -	14 18 45.79	127.05	64.35	14 16 35.6	458.5	
	κ Virginis -	4½	14 5 40.96			9 38		
	λ Virginis -	4½	14 11 47.61			S. 12 45		
7	κ Virginis -	4½	14 5 40.95			S. 9 38		
	λ Virginis -	4½	14 11 47.60			12 45		
	Moon I. U.	5.4	14 44 28.34	130.08	65.17	15 43 24.9	-408.5	
	Moon I. L.	- -	15 10 48.38	133.28	66.03	16 59 30.4	351.2	
8	ι Libræ - -	4½	15 4 31.28			19 16		
	ζ Libræ - -	4	15 20 38.22			S. 16 14		
	ι Libræ - -	4½	15 4 31.26			S. 19 16		
	ζ Libræ - -	4	15 20 38.20			16 14		
9	Moon I. U.	6.4	15 37 47.37	136.56	66.88	18 3 24.4	-286.5	
	Moon I. L.	- -	16 5 25.63	139.80	67.72	18 53 38.4	214.6	
	δ Scorpïi - -	2½	15 52 20.81			22 14		
	β Scorpïi - -	2	15 57 34.92			S. 19 26		
10	δ Scorpïi - -	2½	15 52 20.79			S. 22 14		
	β Scorpïi - -	2	15 57 34.90			19 26		
	Moon I. U.	7.5	16 33 42.07	142.90	68.50	19 28 47.1	-135.8	
	Moon I. L.	- -	17 2 34.16	145.73	69.20	19 47 31.9	-50.7	
11	η Ophiuchi.	2½	17 2 38.09			15 33		
	θ Ophiuchi.	3½	17 13 43.05			S. 24 52		
	η Ophiuchi.	2½	17 2 38.07			S. 15 33		
	θ Ophiuchi.	3½	17 13 43.03			24 52		
12	Moon I. U.	8.5	17 31 58.03	148.18	69.80	19 48 44.4	+39.5	
	Moon I. L.	- -	18 1 48.54	150.15	70.27	19 31 30.2	133.4	
	μ Sagittarii	4	18 5 41.42			21 5		
	λ Sagittarii	3	18 19 38.56			S. 25 30		
13	μ Sagittarii	4	18 5 41.41			S. 21 5		
	λ Sagittarii	3	18 19 38.54			25 30		
	Moon I. U.	9.5	18 31 59.67	151.61	70.60	18 55 15.9	+229.2	
	Moon I. L.	- -	19 2 24.99	152.52	70.79	S. 17 59 51.0	+324.8	

MOON-CULMINATING STARS, 1864. 417

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Sept. 10	♈ Sagittarii	4	^h 18 ^m 56 ^s 35.78	"	"	S. 21° 56'	"	
	♈ Sagittarii	3	19 1 44.33			21 14		
11	♈ Sagittarii	4	18 56 35.76			S. 21 56		
	♈ Sagittarii	3	19 1 44.31			21 14		
	Moon I. U.	10.6	19 32 58.09	152.92	70.86	16 45 31.9	+417.8	
	Moon I. L.	-	20 3 33.20	152.87	70.81	15 13 4.9	505.7	
	♏ Capricorni	3½	20 10 34.27			12 57		
12	♏ Capricorni	5	20 21 9.93			S. 18 15		
	♏ Capricorni	3½	20 10 34.26			S. 12 57		
	♏ Capricorni	5	20 21 9.92			18 15		
	Moon I. U.	11.6	20 34 5.48	152.47	70.69	13 23 45.6	+586.1	
	Moon I. L.	-	21 4 31.48	151.84	70.50	11 19 18.7	656.6	
13	♏ Capricorni	4½	20 45 22.99			9 29		
	♏ Capricorni	4½	21 2 14.96			S. 11 55		
	♏ Capricorni	4½	20 45 22.98			S. 9 29		
	♏ Capricorni	4½	21 2 14.95			11 55		
	Moon I. U.	12.6	21 34 49.13	151.10	70.29	9 1 55.9	+715.1	
14	Moon I. L.	-	22 4 57.75	150.35	70.09	6 34 11.6	759.9	
	♏ Capricorni	4½	22 9 43.41			8 27		
	♏ Capricorni	4½	22 23 30.92			S. 11 22		
	♏ Capricorni	4½	22 9 43.41			S. 8 27		
	♏ Capricorni	4½	22 23 30.92			11 22		
15	Moon I. U.	13.7	22 34 57.87	149.69	69.92	3 58 58.3	+789.7	
	Moon I. L.	-	23 4 50.92	149.18	69.78	S. 1 19 21.9	803.7	
	♏ Capricorni	4	23 10 11.08			N. 2 33		
	♏ Capricorni	4½	23 20 1.79			N. 0 31		
	♏ Capricorni	4	23 10 11.08			N. 2 33		
16	♏ Capricorni	4½	23 20 1.80			0 31		
	Moon II. U.	14.7	23 36 58.39	148.85	69.70	1 21 26.1	+801.6	
	♏ Capricorni	4	23 52 23.94			6 7		
	♏ Capricorni	5½	0 13 40.28			N. 7 26		
	♏ Capricorni	4	23 52 23.95			N. 6 7		
17	♏ Capricorni	5½	0 13 40.29			7 26		
	Moon II. L.	-	0 6 43.63	148.72	69.67	4 0 12.8	+783.6	
	Moon II. U.	15.8	0 36 28.25	148.74	69.68	6 33 52.3	750.5	
	♏ Capricorni	4	0 55 57.44			7 10		
	♏ Capricorni	4½	1 6 41.83			N. 6 51		
18	♏ Capricorni	4	0 55 57.45			N. 7 10		
	♏ Capricorni	4½	1 6 41.84			6 51		
	Moon II. L.	-	1 6 13.74	148.85	69.73	8 59 29.1	+793.4	
	Moon II. U.	16.8	1 36 0.75	148.98	69.78	11 14 25.8	644.1	
	♏ Capricorni	4½	2 5 51.68			8 12		
18	♏ Capricorni	4	2 20 59.88			N. 7 51		
	♏ Capricorni	4½	2 5 51.70			N. 8 12		
	♏ Capricorni	4	2 20 59.90			7 51		
	Moon II. L.	-	2 5 48.90	149.03	69.82	N. 13 16 25.7	+574.3	

418 MOON-CULMINATING STARS, 1864.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of (C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of (C's R. A. in 1 hour of Long.	Sidereal Time of (C's Sem. pas. mer.	Declination.		
Sept. 18	Moon II. U.	17.8	^h 2 35 ^m 36.61	148.89	69.82	N. 15 3 35.8	+496.2	
	♈ Arietis -	4½	2 51 30.76			20 48		
	♈ Arietis -	4½	3 3 55.59			N. 19 13		
19	♈ Arietis -	4½	2 51 30.78			N. 20 48		
	♈ Arietis -	4½	3 3 55.62			19 13		
	Moon II. L.	- -	3 5 21.15	148.48	69.75	16 34 29.8	+412.0	
	Moon II. U.	18.9	3 34 58.79	147.73	69.60	17 48 7.8	323.9	
	♈ Tauri -	4	4 12 7.25			15 18		
	♈ Tauri -	3½	4 20 44.56			N. 18 53		
20	♈ Tauri -	4	4 12 7.28			N. 15 18		
	♈ Tauri -	3½	4 20 44.58			18 53		
	Moon II. L.	- -	4 4 25.08	146.58	69.35	18 43 56.4	+234.1	
	Moon II. U.	19.9	4 33 35.16	145.03	68.99	19 21 46.9	144.5	
	♈ Orionis -	5	4 56 51.64			15 13		
	♈ Orionis -	5½	5 1 58.67			N. 15 25		
21	♈ Orionis -	5	4 56 51.67			N. 15 13		
	♈ Orionis -	5½	5 1 58.70			15 25		
	Moon II. L.	- -	5 2 24.15	143.08	68.53	19 41 53.1	+ 57.0	
	Moon II. U.	21.0	5 30 47.58	140.78	67.97	19 44 47.1	- 27.3	
	♈ Geminor.	3½	6 6 43.51			22 33		
	♈ Geminor.	3	6 14 47.31			N. 22 35		
22	♈ Geminor.	3½	6 6 43.54			N. 22 33		
	♈ Geminor.	3	6 14 47.35			22 35		
	Moon II. L.	- -	5 58 41.74	138.21	67.33	19 31 16.2	-107.0	
	Moon II. U.	22.0	6 26 3.87	135.45	66.63	19 2 19.2	181.5	
	♈ Geminor.	4	6 56 5.59			20 46		
	♈ Geminor.	3½	7 10 19.53			N. 16 47		
23	♈ Geminor.	4	6 56 5.62			N. 20 46		
	♈ Geminor.	3½	7 10 19.55			16 47		
	Moon II. L.	- -	6 52 52.28	132.61	65.89	18 19 2.9	-250.2	
	Moon II. U.	23.0	7 19 6.47	129.77	65.14	17 22 38.2	312.9	
	♈ Geminor.	6	7 31 40.12			17 59		
	♈ Geminor.	5½	7 38 17.58			N. 18 50		
24	♈ Geminor.	6	7 31 40.14			N. 17 59		
	♈ Geminor.	5½	7 38 17.60			18 50		
	Moon II. L.	- -	7 44 47.02	127.02	64.40	16 14 18.0	-369.4	
	Moon II. U.	24.1	8 9 55.50	124.43	63.69	14 55 15.9	419.9	
	♈ Canceri -	4	8 36 59.62			18 39		
	♈ Canceri -	4	8 51 5.09			N. 12 23		
25	♈ Canceri -	4	8 36 59.64			N. 18 39		
	♈ Canceri -	4	8 51 5.11			12 23		
	Moon II. L.	- -	8 34 34.30	122.08	63.03	13 26 44.0	-464.4	
	Moon II. U.	25.1	8 58 46.53	120.01	62.45	11 49 53.3	-503.1	
	♈ Leonis -	5½	9 30 3.94			7 27		
	♈ Leonis -	3½	9 33 55.77			N. 10 31		
26	♈ Leonis -	5½	9 30 3.96			N. 7 27		

MOON-CULMINATING STARS, 1864. 419

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "		
Sept. 26	• Leonis - *	3½	9 33 55.79			N. 10 31		
	Moon II. L.	- -	9 22 35.78	118.25	61.94	10 5 52.5	-	536.1
	Moon II. U.	26.1	9 46 6.06	116.85	61.52	N. 8 15 49.2		563.6
27	Moon II. L.	- -	10 9 21.75	115.82	61.21	N. 6 20 49.0	-	585.6
	Moon II. U.	27.2	10 32 27.33	115.18	60.99	4 21 57.8		602.1
28	Moon II. L.	- -	10 55 27.49	114.92	60.90	N. 2 20 21.3	-	613.1
	Moon II. U.	28.2	11 18 26.90	115.05	60.91	N. 0 17 5.7		618.6
29	Moon II. L.	- -	11 41 30.30	115.58	61.03	S. 1 46 41.2	-	618.3
	Moon II. U.	29.2	12 4 42.36	116.50	61.27	3 49 49.6		612.1
30	Moon II. L.	- -	12 28 7.65	117.78	61.61	S. 5 51 7.2	-	599.8
Oct. 1	Moon I. U.	0.6	12 49 46.43	119.34	62.05	S. 7 49 18.8	-	581.1
	Moon I. L.	- -	13 13 49.93	121.29	62.59	9 43 6.7		555.8
2	Moon I. U.	1.6	13 38 18.64	123.54	63.23	S. 11 31 9.6	-	523.6
	Moon I. L.	- -	14 3 15.90	126.03	63.88	13 12 3.7		484.3
3	Moon I. U.	2.6	14 28 44.19	128.71	64.60	S. 14 44 23.1	-	437.8
	Moon I. L.	- -	14 54 45.33	131.50	65.35	16 6 41.6		384.1
4	Moon I. U.	3.7	15 21 20.14	134.30	66.10	S. 17 17 32.7	-	323.3
	Moon I. L.	- -	15 48 28.35	137.04	66.83	18 15 32.9		255.7
5	β ^r Scorpil - -	2	15 57 34.50			19 26		
	γ ^r Scorpil - -	4	16 4 8.34			S. 19 6		
6	β ^r Scorpil - -	2	15 57 34.49			S. 19 26		
	γ ^r Scorpil - -	4	16 4 8.33			19 6		
7	Moon I. U.	4.7	16 16 8.50	139.61	67.51	18 59 23.5	-	181.8
	Moon I. L.	- -	16 44 18.03	141.92	68.12	19 27 53.1		102.3
20	Ophiuchi -	5	16 42 21.33			10 32		
	η ^r Ophiuchi -	2½	17 2 37.62			S. 15 33		
6	20 Ophiuchi -	5	16 42 21.32			S. 10 32		
	η ^r Ophiuchi -	2½	17 2 37.61			15 33		
7	Moon I. U.	5.7	17 12 53.24	143.88	68.63	19 40 1.6	-	18.4
	Moon I. L.	- -	17 41 49.58	145.44	69.04	19 35 2.1	+	68.8
8	ξ ^r Serpentis	3½	17 29 50.90			15 19		
	58 Ophiuchi -	5	17 35 19.96			S. 21 37		
7	ξ ^r Serpentis	3½	17 29 50.89			S. 15 19		
	58 Ophiuchi -	5	17 35 19.94			21 37		
8	Moon I. U.	6.8	18 11 1.98	146.55	69.33	19 12 24.2	+	157.8
	Moon I. L.	- -	18 40 25.12	147.23	69.50	18 31 55.3		246.9
9	γ ^r Sagittarii	5	18 46 0.84			22 54		
	ε ^r Sagittarii	4	18 49 40.20			S. 21 17		
8	γ ^r Sagittarii	5	18 46 0.82			S. 22 54		
	ε ^r Sagittarii	4	18 49 40.18			21 17		
9	Moon I. U.	7.8	19 9 54.01	147.52	69.57	17 33 43.9	+	334.6
	Moon I. L.	- -	19 39 24.20	147.47	69.55	16 18 19.0	+	418.9
10	ε ^r Sagittarii	5	19 34 47.74			16 26		
	f ^r Sagittarii	5	19 38 29.15			S. 20 5		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.						
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.		
Oct. 9	e Sagittarii	5	h m s 19 34 47.72	s	s	S. 16 26	"	"	
	f Sagittarii	5	19 38 29.13			20 5			
	Moon I. U.	8.8	20 8 52.32	147.18	69.47	14 46 30.2	+498.2		
	Moon I. L.	-	20 38 16.09	146.76	69.34	12 59 28.5	570.8		
	ε Aquarii -	3½	20 40 22.40			9 59			
	μ Aquarii -	4½	20 45 22.64			S. 9 29			
	10	ε Aquarii -	3½	20 40 22.39			S. 9 59		
		μ Aquarii -	4½	20 45 22.62			9 29		
		Moon I. U.	9.9	21 7 34.50	146.31	69.21	10 58 44.2	+635.0	
		Moon I. L.	-	21 36 47.86	145.93	69.09	8 46 6.8	689.4	
		β Aquarii -	3	21 24 27.52			6 10		
		ξ Aquarii -	4½	21 30 34.40			S. 8 28		
	11	β Aquarii -	3	21 24 27.50			S. 6 10		
		ξ Aquarii -	4½	21 30 34.39			8 28		
		Moon I. U.	10.9	22 5 57.53	145.71	69.00	6 23 42.8	+732.6	
		Moon I. L.	-	22 35 5.79	145.70	68.97	3 53 55.3	763.2	
γ Aquarii -		3½	22 14 41.81			2 4			
η Aquarii -		3½	22 28 25.93			S. 0 49			
12	γ Aquarii -	3½	22 14 41.80			S. 2 4			
	η Aquarii -	3½	22 28 25.92			0 49			
	Moon I. U.	12.0	23 4 15.44	145.95	69.00	S. 1 19 20.9	+780.3		
	Moon I. L.	-	23 33 29.66	146.46	69.11	N. 1 17 13.6	783.0		
	κ Piscium -	4½	23 20 1.76			0 31			
	ι Piscium *	4½	23 33 1.56			N. 4 54			
13	κ Piscium -	4½	23 20 1.76			N. 0 31			
	ι Piscium *	4½	23 33 1.56			4 54			
	Moon I. U.	13.0	0 2 51.47	147.21	69.26	3 52 52.5	+771.0		
	Moon I. L.	-	0 32 23.48	148.15	69.48	6 24 37.7	744.1		
	58 Piscium *	5	0 40 0.32			11 14			
	δ Piscium *	4½	0 41 42.08			N. 6 51			
14	58 Piscium *	5	0 40 0.32			N. 11 14			
	δ Piscium *	4½	0 41 42.08			6 51			
	Moon I. U.	14.0	1 2 7.40	149.18	69.72	8 49 33.1	+702.8		
	η Piscium -	3½	1 24 17.11			14 39			
	ο Piscium *	4	1 38 17.44			N. 8 28			
	15	η Piscium -	3½	1 24 17.12			N. 14 39		
ο Piscium *		4	1 38 17.45			8 28			
Moon II. L.		-	1 34 23.68	150.24	69.97	11 4 50.0	+647.9		
Moon II. U.		15.1	2 4 32.09	151.13	70.19	13 7 54.5	580.9		
38 Arietis *		5	2 37 37.76			11 52			
π Arietis -		5½	2 41 47.14			N. 16 54			
16	38 Arietis *	5	2 37 37.77			N. 11 52			
	π Arietis -	5½	2 41 47.16			16 54			
	Moon II. L.	-	2 34 49.38	151.70	70.35	14 56 31.3	+503.7		
	Moon II. U.	16.1	3 5 11.38	151.88	70.41	16 28 50.4	+418.4		
	η Tauri -	3	3 39 29.11			23 41			
	A ¹ Tauri -	4½	3 56 44.28			N. 21 42			

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
Oct. 17	γ Tauri - -	3	3 39 29.13			N.23 41		
	α' Tauri - -	4½	3 56 44.30			21 42		
	Moon II. L.	- -	3 35 32.46	151.53	70.36	17 43 31.3	+327.7	
	Moon II. U.	17.1	4 5 45.90	150.60	70.17	18 39 43.3	234.1	
	δ Tauri - -	4	4 15 10.24			17 13		
18	ε Tauri - -	3½	4 20 45.29			N.18 53		
	δ Tauri - -	4	4 15 10.26			N.17 13		
	ε Tauri - -	3½	4 20 45.31			18 53		
	Moon II. L.	- -	4 35 44.49	149.06	69.83	19 17 7.7	+140.2	
	Moon II. U.	18.2	5 5 21.11	146.95	69.35	19 35 54.8	+48.2	
	ζ Tauri - -	3½	5 29 35.57			21 3		
	χ' Orionis -	4½	5 46 24.05			N.20 15		
19	ζ Tauri - -	3½	5 29 35.60			N.21 3		
	χ' Orionis -	4½	5 46 24.08			20 15		
	Moon II. L.	- -	5 34 29.23	144.33	68.74	19 36 39.9	-39.9	
	Moon II. U.	19.2	6 3 3.55	141.33	68.03	19 20 18.5	122.6	
	μ Geminor.	3	6 14 48.18			22 35		
	γ Geminor.	2½	6 29 55.27			N.16 31		
20	μ Geminor.	3	6 14 48.21			N.22 35		
	γ Geminor.	2½	6 29 55.30			16 31		
	Moon II. L.	- -	6 31 0.23	138.08	67.24	18 48 1.9	-199.0	
	Moon II. U.	20.2	6 58 17.03	134.71	66.41	18 1 9.3	268.5	
	δ Geminor.	3½	7 12 3.79			22 14		
	κ Geminor.	3½	7 36 17.73			N.24 43		
21	δ Geminor.	3½	7 12 3.82			N.22 14		
	κ Geminor.	3½	7 36 17.76			24 43		
	Moon II. L.	- -	7 24 53.33	131.35	65.56	17 1 5.3	-330.9	
	Moon II. U.	21.3	7 50 50.05	128.13	64.73	15 49 14.8	386.3	
	29 Cancrī - -	6	8 21 5.17			14 39		
	ε' Cancrī - *	6	8 29 46.14			N.10 8		
22	29 Cancrī - -	6	8 21 5.20			N.14 39		
	ε' Cancrī - *	6	8 29 46.17			10 8		
	Moon II. L.	- -	8 16 9.32	125.13	63.93	14 27 1.1	-434.9	
	Moon II. U.	22.3	8 40 54.36	122.43	63.21	12 55 43.4	477.0	
	α Cancrī - *	4	8 51 5.84			12 23		
	π' Cancrī - -	6	9 7 46.11			N.15 30		
23	α Cancrī - *	4	8 51 5.86			N.12 23		
	π' Cancrī - -	6	9 7 46.14			15 30		
	Moon II. L.	- -	9 5 9.19	120.10	62.58	11 16 36.8	-513.1	
	Moon II. U.	23.3	9 28 58.38	118.17	62.03	9 30 51.8	543.5	
	π Leonis - *	5	9 53 4.08			8 41		
	Δ Leonis - *	5	10 0 43.56			N.10 40		
24	π Leonis - *	5	9 53 4.11			N. 8 41		
	Δ Leonis - *	5	10 0 43.59			10 40		
	Moon II. L.	- -	9 52 26.93	116.67	61.60	7 39 35.4	-568.4	
	Moon II. U.	24.4	10 15 40.16	115.61	61.27	5 43 51.2	-588.1	
	36 Sextantis	6	10 38 11.30			N. 3 12		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of (°s Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of (°s R.A. in 1 hour of Long.	Sidereal Time of (°s Sem. pas. mer.	Declination.		
			h m s	"	"	° ' "	"	
Oct. 24	<i>d</i> Leonis - *	5	10 53 34.54			N. 4 21		
25	36 Sextantis	6	10 38 11.32			N. 3 12		
	<i>d</i> Leonis - *	5	10 53 34.56			4 21		
	Moon II.L.	- -	10 38 43.49	115.02	61.08	3 44 41.0	-602.7	
	Moon II.U.	25.4	11 1 42.42	114.88	61.00	N. 1 43 6.4	612.2	
	<i>e</i> Leonis - -	5	11 23 24.18			S. 2 15		
	<i>v</i> Leonis - -	4½	11 30 1.34			S. 0 5		
26	<i>e</i> Leonis - -	5	11 23 24.20			S. 2 15		
	<i>v</i> Leonis - -	4½	11 30 1.36			0 5		
	Moon II.L.	- -	11 24 42.46	115.20	61.05	0 19 50.9	-616.5	
	Moon II.U.	26.4	11 47 49.03	115.97	61.23	S. 2 23 7.0	615.3	
27	Moon II.L.	- -	12 11 7.40	117.17	61.52	S. 4 25 34.5	-608.3	
	Moon II.U.	27.5	12 34 42.65	118.78	61.92	6 26 2.7	595.3	
28	Moon II.L.	- -	12 58 39.54	120.77	62.43	S. 8 23 16.0	-575.8	
	Moon II.U.	28.5	13 23 2.37	123.09	63.03	10 15 53.4	549.3	
29	Moon II.L.	- -	13 47 54.87	125.70	63.70	S. 12 2 29.4	-515.5	
	Moon II.U.	29.5	14 13 19.99	128.52	64.42	13 41 33.8	474.0	
30	Moon I.L.	- -	14 37 9.39	131.33	65.19	S. 15 11 33.4	-424.6	
31	Moon I.U.	0.9	15 3 43.09	134.29	65.95	S. 16 30 53.9	-367.5	
	Moon I.L.	- -	15 30 51.87	137.15	66.69	17 38 2.1	302.7	
Nov. 1	Moon I.U.	1.9	15 58 33.82	139.80	67.38	S. 18 31 30.2	-230.9	
	Moon I.L.	- -	16 26 45.70	142.12	67.98	19 9 58.2	152.9	
2	Moon I.U.	2.9	16 55 22.86	144.00	68.47	S. 19 32 19.0	-69.9	
	Moon I.L.	- -	17 24 19.61	145.37	68.84	19 37 41.5	+16.6	
3	Moon I.U.	4.0	17 53 29.58	146.20	69.08	S. 19 25 33.5	+104.9	
	Moon I.L.	- -	18 22 46.25	146.49	69.18	18 55 44.1	193.2	
	μ Sagittarii	4	18 5 40.50			21 5		
	21 Sagittarii	5	18 17 17.78			S. 20 37		
4	μ Sagittarii	4	18 5 40.48			S. 21 5		
	21 Sagittarii	5	18 17 17.77			20 37		
	Moon I.U.	5.0	18 52 3.44	146.30	69.16	18 8 23.8	+279.7	
	Moon I.L.	- -	19 21 15.79	145.70	69.03	17 4 4.8	362.7	
	<i>d</i> Sagittarii	5	19 9 43.50			19 11		
	<i>v</i> Sagittarii	4½	19 13 59.17			S. 16 12		
5	<i>d</i> Sagittarii	5	19 9 43.49			S. 19 11		
	<i>v</i> Sagittarii	4½	19 13 59.16			16 12		
	Moon I.U.	6.1	19 50 19.21	144.83	68.85	15 43 38.1	+440.7	
	Moon I.L.	- -	20 19 11.09	143.80	68.61	14 8 12.6	512.3	
	α Capricorni	3½	20 10 33.41			12 58		
	ρ Capricorni	5	20 21 9.06			S. 18 15		
6	α Capricorni	3½	20 10 33.39			S. 12 58		
	ρ Capricorni	5	20 21 9.04			18 15		
	Moon I.U.	7.1	20 47 50.42	142.76	68.36	12 19 12.0	+576.4	
	Moon I.L.	- -	21 16 17.67	141.81	68.12	S. 10 18 13.0	+631.9	

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Declination.	Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.				
Nov. 6	♈ Aquarii -	4½	h m s 21 2 14.18	s	s		° ' "	S. 11 55	"
	ξ Aquarii -	4½	21 30 34.00					8 28	
7	♈ Aquarii -	4½	21 2 14.17					S. 11 55	
	ξ Aquarii -	4½	21 30 33.99					8 28	
	Moon I. U.	8.1	21 44 34.76	141.08	67.93			8 7	+678.1
	Moon I. L.	-	22 12 44.72	140.64	67.81			5 47 40.0	714.1
	♈ Aquarii -	4½	22 9 42.86					8 27	
	γ Aquarii -	3½	22 14 41.47					S. 2 4	
8	♈ Aquarii -	4½	22 9 42.84					S. 8 27	
	γ Aquarii -	3½	22 14 41.46					2 4	
	Moon I. U.	9.2	22 40 51.50	140.55	67.77			3 22 8.8	+739.3
	Moon I. L.	-	23 8 59.58	140.86	67.82			S. 0 52 43.9	752.9
	γ Piscium -	4	23 10 10.78					N. 2 33	
	κ Piscium -	4½	23 20 1.54					N. 0 31	
9	γ Piscium -	4	23 10 10.77					N. 2 33	
	κ Piscium -	4½	23 20 1.53					0 31	
	Moon I. U.	10.2	23 37 13.66	141.55	67.97			1 38 13.5	+754.6
	Moon I. L.	-	0 5 38.35	142.62	68.20			4 8 15.6	743.6
	♈ Piscium *	4	23 52 23.83					6 7	
	δ Piscium *	5½	0 13 40.28					N. 7 26	
10	♈ Piscium *	4	23 52 23.82					N. 6 7	
	δ Piscium *	5½	0 13 40.27					7 26	
	Moon I. U.	11.2	0 34 17.76	144.00	68.51			6 34 49.5	+719.8
	Moon I. L.	-	1 3 15.09	145.59	68.88			8 55 20.2	683.1
	♈ Piscium *	4	0 55 57.64					7 10	
	ζ Piscium *	4½	1 6 42.09					N. 6 51	
11	♈ Piscium *	4	0 55 57.64					N. 7 10	
	ζ Piscium *	4½	1 6 42.09					6 51	
	Moon I. U.	12.3	1 32 32.30	147.29	69.26			11 7 13.4	+633.7
	Moon I. L.	-	2 2 9.78	148.94	69.64			13 8 0.6	572.2
	♈ Arietis -	6	1 50 0.45					17 9	
	B.A.C. 632	6	1 56 20.47					N. 17 36	
12	♈ Arietis -	6	1 50 0.45					N. 17 9	
	B.A.C. 632	6	1 56 20.47					17 36	
	Moon I. U.	13.3	2 32 5.95	150.38	69.98			14 55 24.4	+500.0
	Moon I. L.	-	3 2 17.26	151.43	70.23			16 27 24.7	418.6
	♈ Arietis -	4½	2 51 31.61					20 48	
	♈ Arietis -	4½	3 3 56.51					N. 19 13	
13	♈ Arietis -	4½	2 51 31.62					N. 20 48	
	♈ Arietis -	4½	3 3 56.52					19 13	
	Moon II. U.	14.3	3 34 58.92	151.96	70.35			17 42 23.6	+330.2
	♈ Tauri -	3½	4 20 45.81					18 53	
	α Tauri -	I	4 28 12.22					N. 16 14	
	♈ Tauri -	3½	4 20 45.84					N. 18 53	
14	α Tauri -	I	4 28 12.24					16 14	
	Moon II. L.	-	4 5 22.24	151.80	70.32			N. 18 39 11.8	+237.3

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.				
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.
Nov. 14	Moon II. U.	15.4	^h ^m ^s 4 35 39.32	^s 150.92	^s 70.13	[°] ['] ["] N. 19 17 10.7	["] + 142.4
	15 Orionis -	5½	5 2 0.06			15 25	
15	15 Tauri - -	5½	5 19 19.16			N. 17 51	
	15 Orionis -	5½	5 2 0.08			N. 15 25	
15	15 Tauri - -	5½	5 19 19.18			17 51	
	Moon II. L.	- -	5 5 41.33	149.30	69.76	19 36 13.3	+ 48.4
	Moon II. U.	16.4	5 35 19.79	147.00	69.24	19 36 43.4	- 42.6
	η Geminor.	3½	6 6 45.14			22 33	
	μ Geminor.	3	6 14 48.96			N. 22 35	
16	η Geminor.	3½	6 6 45.16			N. 22 33	
	μ Geminor.	3	6 14 48.99			22 35	
	Moon II. L.	- -	6 4 27.20	144.15	68.57	19 19 30.2	- 128.6
	Moon II. U.	17.5	6 32 57.69	140.88	67.79	18 45 43.8	208.0
	ζ Geminor.	4	6 56 7.27			20 46	
	δ Geminor.	3½	7 12 4.63			N. 22 14	
17	ζ Geminor.	4	6 56 7.30			N. 20 46	
	δ Geminor.	3½	7 12 4.66			22 14	
	Moon II. L.	- -	7 0 47.24	137.35	66.94	17 56 48.7	- 279.9
	Moon II. U.	18.5	7 27 53.84	133.75	66.06	16 54 17.4	344.0
	8 Cancrī - *	6	7 57 34.08			13 30	
	ζ Cancrī - -	5½	8 4 28.88			N. 18 3	
18	8 Cancrī - *	6	7 57 34.11			N. 13 30	
	ζ Cancrī - -	5½	8 4 28.91			18 3	
	Moon II. L.	- -	7 54 17.41	130.20	65.18	15 39 44.7	- 400.1
	Moon II. U.	19.5	8 19 59.47	126.85	64.33	14 14 45.0	448.6
	A ^α Cancrī - *	6	8 39 32.53			12 36	
	α Cancrī - *	4	8 51 6.67			N. 12 23	
19	A ^α Cancrī - *	6	8 39 32.56			N. 12 36	
	α Cancrī - *	4	8 51 6.70			12 23	
	Moon II. L.	- -	8 45 2.94	123.79	63.55	12 40 47.2	- 489.9
	Moon II. U.	20.6	9 9 31.85	121.10	62.85	10 59 15.3	524.4
	ο Leonis - *	3½	9 33 57.27			10 31	
	ν Leonis - *	5	9 50 57.70			N. 13 6	
20	ο Leonis - *	3½	9 33 57.30			N. 10 31	
	ν Leonis - *	5	9 50 57.73			13 6	
	Moon II. L.	- -	9 33 31.02	118.84	62.25	9 11 26.7	- 552.7
	Moon II. U.	21.6	9 57 5.85	117.05	61.76	7 18 32.6	575.4
	16 Sextantis*	6	10 2 10.67			6 50	
	23 Sextantis	6	10 14 3.98			N. 2 58	
21	16 Sextantis*	6	10 2 10.71			N. 6 50	
	23 Sextantis	6	10 14 4.01			2 58	
	Moon II. L.	- -	10 20 22.11	115.75	61.40	5 21 39.0	- 592.7
	Moon II. U.	22.6	10 43 25.86	114.96	61.18	N. 3 21 48.0	- 605.0
	φ Leonis - -	4½	11 9 47.86			S. 2 55	
	τ Leonis - -	5	11 20 59.50			N. 3 36	
22	φ Leonis - -	4½	11 9 47.89			S. 2 55	

MOON-CULMINATING STARS, 1864. 42.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
h m s								

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
h m s								
Dec. 5	♈ Aquarii -	4½	22 9 42.48			S. 8 27		
	♈ Aquarii -	3½	22 14 41.10			2 4		
	Moon I. U.	6.4	22 23 49.87	138.74	67.34	4 57 20.6	+715.6	
	Moon I. L.	- -	22 51 30.34	138.08	67.18	S. 2 32 20.4	732.6	
	♊ Piscium -	4½	22 57 0.92			N. 3 5		
6	♊ Piscium -	4	23 10 10.46			N. 2 33		
	♊ Piscium	4½	22 57 0.91			N. 3 5		
	♊ Piscium -	4	23 10 10.45			N. 2 33		
	Moon I. U.	7.5	23 19 5.68	137.88	67.13	S. 0 5 1.3	+738.8	
	Moon I. L.	- -	23 46 41.40	138.15	67.19	N. 2 22 26.1	734.0	
7	♊ Piscium *	4½	23 33 1.05			4 54		
	♊ Piscium *	4	23 52 23.55			N. 6 7		
	♊ Piscium *	4½	23 33 1.04			N. 4 54		
	♊ Piscium *	4	23 52 23.54			6 7		
	Moon I. U.	8.5	0 14 22.96	138.85	67.35	4 47 50.6	+718.3	
8	Moon I. L.	- -	0 42 15.48	139.96	67.61	7 9 0.5	691.6	
	♊ Piscium *	4½	0 41 41.82			6 51		
	♊ Piscium *	4	0 55 57.46			N. 7 10		
	♊ Piscium *	4½	0 41 41.81			N. 6 51		
	♊ Piscium *	4	0 55 57.45			7 10		
9	Moon I. U.	9.5	1 10 23.29	141.39	67.94	9 23 44.5	+653.9	
	Moon I. L.	- -	1 38 49.66	143.03	68.32	11 29 52.3	605.6	
	♊ Piscium -	3½	1 24 17.04			14 39		
	♊ Piscium *	4	1 38 17.43			N. 8 28		
	♊ Piscium -	3½	1 24 17.03			N. 14 39		
10	♊ Piscium *	4	1 38 17.42			8 28		
	Moon I. U.	10.6	2 7 36.45	144.77	68.71	13 25 17.4	+546.9	
	Moon I. L.	- -	2 36 43.80	146.43	69.09	15 8 0.4	478.7	
	♊ Arietis *	5½	2 29 17.94			11 51		
	♊ Arietis *	5	2 37 38.05			N. 11 52		
11	♊ Arietis *	5½	2 29 17.94			N. 11 51		
	♊ Arietis *	5	2 37 38.05			11 52		
	Moon I. U.	11.6	3 6 9.84	147.85	69.41	16 36 13.1	+402.1	
	Moon I. L.	- -	3 35 50.74	148.88	69.63	17 48 22.7	318.5	
	♊ Tauri -	3	3 39 29.77			23 41		
12	♊ Tauri -	4½	3 56 45.03			N. 21 42		
	♊ Tauri -	3	3 39 29.77			N. 23 41		
	♊ Tauri -	4½	3 56 45.04			21 42		
	Moon I. U.	12.6	4 5 40.80	149.36	69.72	18 43 17.7	+229.9	
	Moon I. L.	- -	4 35 32.73	149.18	69.66	19 20 10.0	138.5	
13	♊ Tauri -	3½	4 20 46.14			18 53		
	♊ Tauri -	I	4 28 12.54			N. 16 14		
	♊ Tauri -	3½	4 20 46.14			N. 18 53		
	♊ Tauri -	I	4 28 12.55			16 14		
	Moon I. U.	13.7	5 5 18.30	148.29	69.43	19 38 40.4	+46.7	
14	♊ Tauri -	3½	5 29 36.77			21 3		
	♊ Orionis -	4½	5 46 25.32			N. 20 15		

MOON-CULMINATING STARS, 1864. 427

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
Dec. 13	ζ Tauri - -	3½	5 29 36.78			N. 21 3		
	χ¹ Orionis -	4½	5 46 25.33			20 15		
	Moon II.L.	- -	5 37 7.02	146.62	69.03	19 38 57.0	- 43.4	
	Moon II.U.	14.7	6 6 13.55	144.37	68.49	19 21 34.5	129.5	
	μ Geminor.	3	6 14 49.58			22 35		
	γ Geminor.	2½	6 29 56.66			N. 16 31		
14	μ Geminor.	3	6 14 49.59			N. 22 35		
	γ Geminor.	2½	6 29 56.68			16 31		
	Moon II.L.	- -	6 34 49.75	141.59	67.82	18 47 31.3	- 210.0	
	Moon II.U.	15.7	7 2 50.23	138.44	67.06	17 58 2.9	283.5	
	63 Geminor.	5½	7 19 45.34			21 43		
	68 Geminor.	5½	7 25 55.90			N. 16 7		
15	63 Geminor.	5½	7 19 45.36			N. 21 43		
	68 Geminor.	5½	7 25 55.92			16 7		
	Moon II.L.	- -	7 30 11.45	135.08	66.24	16 54 38.0	- 349.3	
	Moon II.U.	16.8	7 56 51.74	131.65	65.39	15 38 52.3	407.0	
	θ Cancri - -	6	8 23 55.29			18 33		
	δ Cancri - -	4	8 37 2.10			N. 18 39		
16	θ Cancri - -	6	8 23 55.32			N. 18 33		
	δ Cancri - -	4	8 37 2.13			18 39		
	Moon II.L.	- -	8 22 51.30	128.30	64.56	14 12 22.9	- 456.6	
	Moon II.U.	17.8	8 48 11.84	125.17	63.77	12 36 45.4	498.4	
	κ Cancri - *	5	9 0 27.45			11 13		
	α Leonis - *	6	9 21 14.90			N. 9 39		
17	κ Cancri - *	5	9 0 27.48			N. 11 13		
	α Leonis - *	6	9 21 14.93			9 39		
	Moon II.L.	- -	9 12 56.44	122.33	63.05	10 53 31.2	- 532.8	
	Moon II.U.	18.8	9 37 9.15	119.86	62.42	9 4 5.0	560.4	
	π Leonis - *	5	9 53 5.76			8 41		
	A Leonis - *	5	10 0 45.26			N. 10 40		
18	π Leonis - *	5	9 53 5.79			N. 8 41		
	A Leonis - *	5	10 0 45.29			10 40		
	Moon II.L.	- -	10 0 54.86	117.83	61.90	7 9 46.0	- 581.8	
	Moon II.U.	19.9	10 24 18.97	116.27	61.50	5 11 45.8	597.3	
	55 Leonis - -	6	10 48 46.70			1 28		
	c Leonis - *	5	10 53 45.75			N. 6 50		
19	55 Leonis - -	6	10 48 46.73			N. 1 28		
	c Leonis - *	5	10 53 45.78			6 50		
	Moon II.L.	- -	10 47 27.33	115.21	61.23	3 11 11.7	- 607.5	
	Moon II.U.	20.9	11 10 26.03	114.66	61.09	N. 1 9 5.6	612.7	
	v Leonis - -	4½	11 30 2.91			S. 0 5		
	β Virginis -	3½	11 43 40.39			N. 2 32		
20	v Leonis - -	4½	11 30 2.94			S. 0 5		
	β Virginis -	3½	11 43 40.42			N. 2 32		
	Moon II.L.	- -	11 33 21.31	114.64	61.07	S. 0 53 33.3	- 613.0	
	Moon II.U.	21.9	11 56 19.58	115.15	61.24	S. 2 55 46.2	- 608.4	
	γ Virginis -	3½	12 13 0.39			N. 0 5		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
Dec. 20	γ Virginis -	2½	12 34 49.58			S. 0 43		
21	η Virginis -	3½	12 13 0.43			N. 0 5		
	γ Virginis -	2½	12 34 49.62			S. 0 43		
	Moon II. L. -	-	12 19 27.12	116.19	61.51	4 56 34.6	-598.9	
	Moon II. U. -	23.0	12 42 50.27	117.75	61.92	6 54 57.8	584.1	
	θ Virginis -	4½	13 2 57.96			4 49		
	α Virginis -	1	13 18 5.22			S. 10 27		
22	θ Virginis -	4½	13 2 57.99			S. 4 49		
	α Virginis -	1	13 18 5.25			10 27		
	Moon II. L. -	-	13 6 35.23	119.82	62.46	8 49 50.9	-563.8	
	Moon II. U. -	24.0	13 30 47.83	122.36	63.12	10 40 3.7	537.3	
	κ Virginis -	4½	14 5 41.95			9 38		
	λ Virginis -	4½	14 11 48.56			S. 12 45		
23	κ Virginis -	4½	14 5 41.98			S. 9 38		
	λ Virginis -	4½	14 11 48.59			12 45		
	Moon II. L. -	-	13 55 33.52	125.33	63.87	12 24 19.2	-504.1	
	Moon II. U. -	25.0	14 20 57.10	128.66	64.72	14 1 13.3	463.6	
	α Libræ -	2½	14 43 24.68			15 29		
	β Libræ -	4½	15 4 31.80			S. 19 16		
24	α Libræ -	2½	14 43 24.71			S. 15 29		
	β Libræ -	4½	15 4 31.83			19 16		
	Moon II. L. -	-	14 47 2.37	132.26	65.61	15 29 14.2	-415.2	
	Moon II. U. -	26.1	15 13 51.96	136.02	66.53	S. 16 46 43.6	358.3	
25	Moon II. L. -	-	15 41 26.85	139.78	67.45	S. 17 51 59.4	-292.9	
	Moon II. U. -	27.1	16 9 46.13	143.39	68.32	18 43 18.3	218.9	
26	Moon II. L. -	-	16 38 46.81	146.65	69.09	S. 19 19 1.5	-137.1	
	Moon II. U. -	28.1	17 8 23.71	149.40	69.74	19 37 41.1	-48.5	
27	Moon II. L. -	-	17 38 29.64	151.47	70.23	S. 19 38 6.2	+45.0	
	Moon II. U. -	29.2	18 8 55.87	152.77	70.53	19 19 30.3	141.2	
28	Moon I. L. -	-	18 37 11.52	153.25	70.66	S. 18 41 37.0	+237.5	
29	Moon I. U. -	0.6	19 7 49.73	152.99	70.59	S. 17 44 41.6	+331.0	
	Moon I. L. -	-	19 38 20.57	152.05	70.37	16 29 33.6	419.2	
30	Moon I. U. -	1.6	20 8 36.66	150.56	70.03	S. 14 57 32.3	+499.5	
	Moon I. L. -	-	20 38 32.63	148.72	69.61	13 10 23.4	570.2	
31	Moon I. U. -	2.7	21 8 5.30	146.71	69.15	S. 11 10 12.6	+629.7	
	Moon I. L. -	-	21 37 13.70	144.70	68.70	S. 8 59 19.2	+677.2	

In the Year 1864 there will be two Eclipses, both of the Sun.

I.—An Eclipse of the SUN, May 5, 1864, invisible at Greenwich.

. Assuming the tabular diameters of the Sun and Moon to be exact, the augmentation of the latter will render this Eclipse Total, except near the positions of central beginning and ending.

ELEMENTS.				
Greenwich Mean Time of \odot in R.A.	May	d	h	m s
\odot 's and ζ 's Right Ascension - - - -		5	12 22	18.9
ζ 's Declination - - - - -	N.		16 48	34.2
\odot 's Declination - - - - -	N.		16 33	6.2
ζ 's Hourly Motion in R.A. - - - - -			35	3.3
\odot 's Hourly Motion in R.A. - - - - -			2	24.9
ζ 's Hourly Motion in Declination - - -	N.		6	52.7
\odot 's Hourly Motion in Declination - - -	N.		0	42.1
ζ 's Equatorial Horizontal Parallax - -			58	4.5
\odot 's Equatorial Horizontal Parallax - -				8.5
ζ 's True Semidiameter - - - - -			15	51.1
\odot 's True Semidiameter - - - - -			15	52.8

Begins on the Earth generally, May 5^d 9^h 30^m.4, Mean Time at Greenwich,
in Longitude 126° 56' E. of Greenwich, and Latitude 1° 23' S.

Central Eclipse begins generally, May 5^d 10^h 31^m.5,
in Longitude 110° 5' E. of Greenwich, and Latitude 3° 53' N.

Central Eclipse at Noon, May 5^d 12^h 22^m.3,
in Longitude 173° 32' E. of Greenwich, and Latitude 32° 14' N.

Central Eclipse ends generally May 5^d 14^h 1^m.8,
in Longitude 113° 17' W. of Greenwich, and Latitude 25° 22' N.

Ends on the Earth generally, May 5^d 15^h 3^m.0,
in Longitude 130° 25' W. of Greenwich, and Latitude 20° 9' N.

The central and limiting lines of this Eclipse, in the diagram in page 432, have been laid down from the following calculated positions :—

Line of Central Eclipse.							
Longitude.		Latitude.		Longitude.		Latitude.	
°	'	°	'	°	'	°	'
110	5 E.	3	53 N.	175	7 E.	32	41 N.
117	36	6	20	177	11 W.	34	20
125	25	9	19	168	22	35	12
132	44	12	34	160	0	35	10
140	11	16	17	149	34	34	8
147	58	20	30	139	53	32	25
154	15	23	55	130	50	30	19
161	16	27	29	121	40	27	50
168	4 E.	30	23 N.	113	17 W.	25	22 N.

Northern line of simple contact.							
Longitude.		Latitude.		Longitude.		Latitude.	
°	'	°	'	°	'	°	'
85	51 E.	41	10 N.	156	22 E.	69	38 N.
95	5	44	13	169	58 E.	71	59
101	9	46	38	174	19 W.	73	27
107	29	49	31	155	12	73	54
113	59	52	44	133	22	72	49
121	46	56	39	116	45	70	43
128	38	60	7	103	17	68	3
135	52	63	18	92	31	65	15
144	41 E.	66	30 N.	78	53 W.	60	55 N.

Southern line of simple contact.							
Longitude.		Latitude.		Longitude.		Latitude.	
°	'	°	'	°	'	°	'
119	37 E.	26	50 S.	179	0 W.	1	37 N.
128	33	23	46	172	42	3	2
134	59	21	15	166	7	3	35
142	9	18	3	159	14	3	19
149	34	14	22	151	47	2	16
156	36	10	29	144	12	0	41 N.
162	59	6	50	137	8	1	9 S.
169	6	3	27	130	59	2	54
175	7 E.	0	33 S.	122	43 W.	5	22 S.

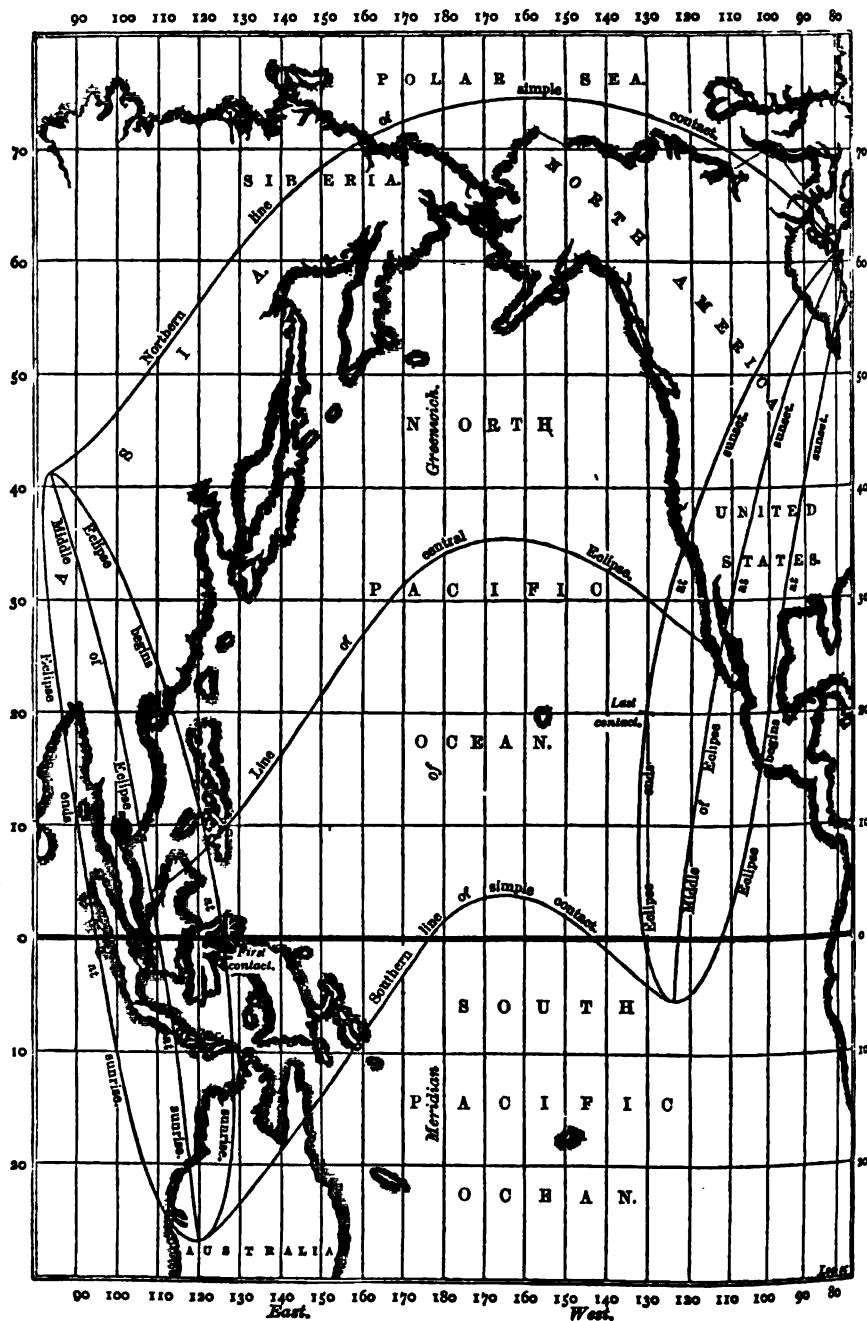
Eclipse begins at Sun-set.

Longitude.	Latitude.	Longitude.	Latitude.
[°] [']	[°] [']	[°] [']	[°] [']
124 32 W.	5 1 S.	98 58 W.	24 6 N.
121 19	5 8	94 23	33 15
117 36	3 34 S.	88 13	44 26
113 13	0 15 N.	82 34	52 55
107 45	7 44	79 21	57 8
103 22 W.	15 27 N.	78 18 W.	60 43 N.

Eclipse ends at Sun-rise.

Longitude.	Latitude.	Longitude.	Latitude.
[°] [']	[°] [']	[°] [']	[°] [']
121 25 E.	26 29 S.	95 41 E.	2 36 N.
118 12	26 36	91 53	11 54
114 23	25 4	87 36	23 25
109 48	21 16	84 40	32 21
104 7	13 50	83 46	39 41
99 46 E.	6 6 S.	83 37 E.	36 57 N.

PATHS OF THE CENTRAL AND OTHER LINES UPON THE SURFACE OF
THE EARTH, OF THE ECLIPSE OF THE SUN, MAY 5, 1864.



II.—An Annular Eclipse of the SUN, Oct. 30, 1864, invisible at Greenwich.

ELEMENTS.				
	d	h	m	s
Greenwich Mean Time of \odot in R. A. Oct.	30	3	35	13.3
\odot 's and ζ 's Right Ascension - - - -		14	20	32.93
ζ 's Declination - - - - - S.		14	11	33.7
\odot 's Declination - - - - - S.		14	1	14.6
ζ 's Hourly Motion in R. A. - - - -			31	18.6
\odot 's Hourly Motion in R. A. - - - -			2	26.4
ζ 's Hourly Motion in Declination - - - S.			7	24.3
\odot 's Hourly Motion in Declination - - - S.				48.9
ζ 's Equatorial Horizontal Parallax - -			55	25.8
\odot 's Equatorial Horizontal Parallax - -				8.6
ζ 's True Semidiameter - - - - -			15	7.8
\odot 's True Semidiameter - - - - -			16	9.3

Begins on the Earth generally, Oct. 30^d 0^h 31^m.1, Mean Time at Greenwich,
in Longitude 100° 14' W. of Greenwich, and Latitude 6° 25' N.

Central Eclipse begins generally, Oct. 30^d 1^h 37^m.0,
in Longitude 117° 39' W. of Greenwich, and Latitude 2° 42' N.

Central Eclipse at Noon, Oct. 30^d 3^h 35^m.2,
in Longitude 57° 52' W. of Greenwich, and Latitude 24° 56' S.

Central Eclipse ends generally, Oct. 30^d 5^h 23^m.5,
in Longitude 11° 8' E. of Greenwich, and Latitude 23° 7' S.

Ends on the Earth generally, Oct. 30^d 6^h 29^m.5,
in Longitude 6° 26' W. of Greenwich, and Latitude 19° 25' S.

The limiting lines of this Eclipse, in the diagram in page 436, have been laid down from the following calculated positions :—

Line of Central Eclipse.			
Longitude.		Latitude.	
°	'	°	'
117	39 W.	2	42 N.
109	52	0	32 N.
102	23	2	1 S.
94	34	5	14
87	15	8	48
80	24	12	36
74	3	16	22
68	17	19	45
62	33 W.	22	49 S.
Longitude.		Latitude.	
°	'	°	'
55	50 W.	25	44 S.
49	21	27	46
42	12	29	9
33	56	29	49
24	54	29	37
15	34	28	38
6	4 W.	27	2
2	33 E.	25	12
11	8 E.	23	7 S.

Northern line of simple contact.			
Longitude.		Latitude.	
°	'	°	'
110	6 W.	34	56 N.
101	5	32	16
91	16	28	46
83	21	25	20
75	54	21	37
69	28	17	57
63	35	14	24
58	42	11	28
54	1 W.	8	52 N.
Longitude.		Latitude.	
°	'	°	'
49	13 W.	6	37 N.
44	26	4	57
39	22	3	49
33	18	3	14
26	46	3	21
19	29	4	7
12	4	5	24
3	17 W.	7	20
4	29 E.	9	15 N.

Southern line of simple contact.			
Longitude.		Latitude.	
°	'	°	'
137	23 W.	34	22 S.
128	40	36	27
121	52	39	7
114	21	42	16
106	58	45	49
99	54	49	28
93	28	52	46
87	5	55	49
80	15 W.	58	41 S.
Longitude.		Latitude.	
°	'	°	'
72	35 W.	61	19 S.
63	34	63	41
52	40	65	42
39	6	67	7
22	7	67	36
4	15 W.	66	44
12	5 E.	64	45
26	34	62	1
38	44 E.	59	1 S.

Eclipse begins at sun-set.

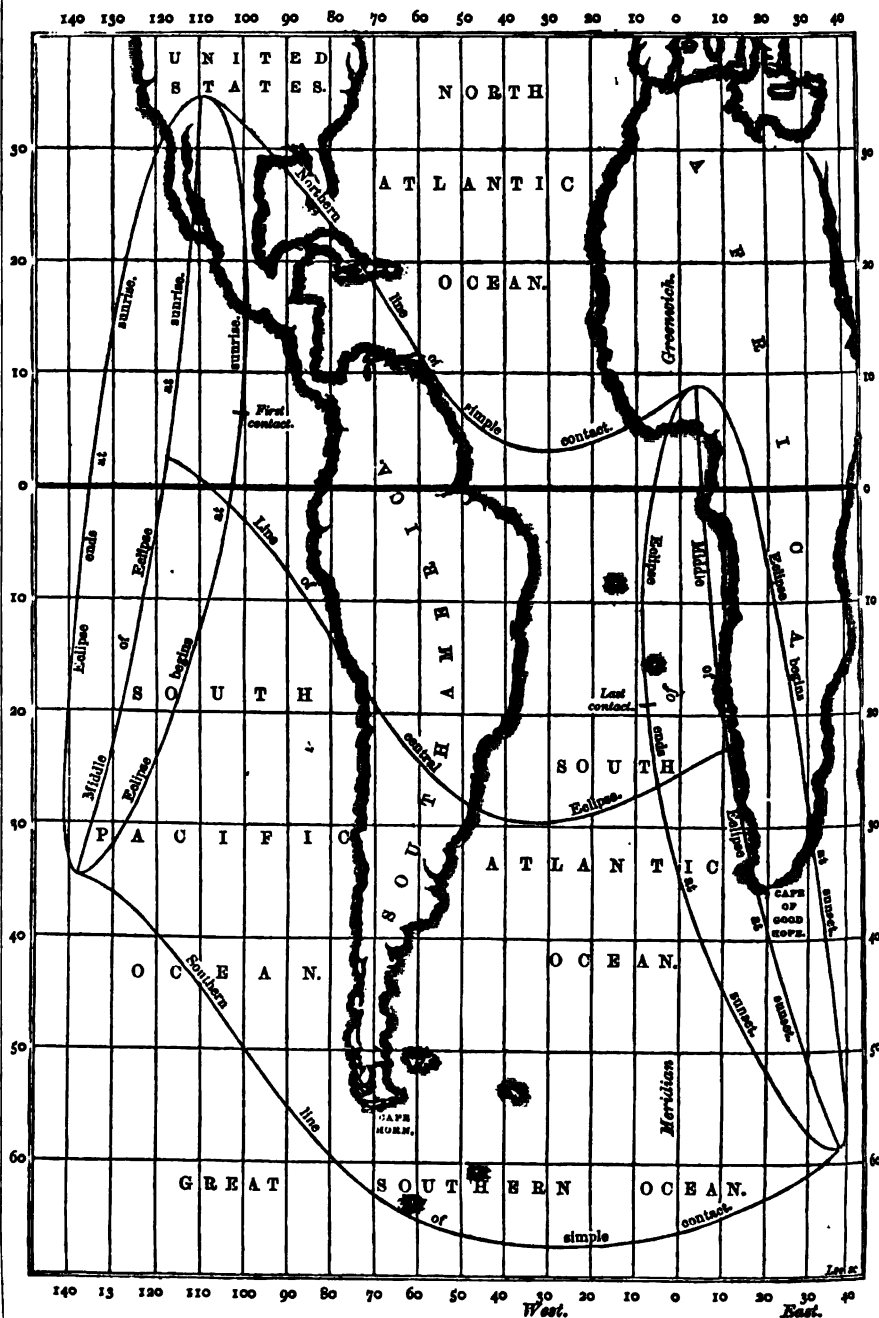
Longitude.	Latitude.	Longitude.	Latitude.
° ' E.	° ' S.	° ' E.	° ' S.
40 43 E.	56 53 S.	23 32 E.	13 32 S.
40 11	58 26	19 42	5 23 S.
39 43	53 31	16 15	0 27 N.
37 29	48 5	11 0	6 30
32 48	36 56	6 55	8 47
27 33 E.	23 10 S.	3 21 E.	9 3 N.

Eclipse ends at sun-rise.

Longitude.	Latitude.	Longitude.	Latitude.
° ' W.	° ' S.	° ' W.	° ' N.
141 7 W.	28 28 S.	130 17 W.	12 20 N.
140 37	22 47	126 19	20 28
140 34	32 4	122 36	26 15
139 10	33 43	116 53	32 13
138 10	11 18 S.	112 35	34 28
133 58 W.	2 39 N.	108 59 W.	34 45 N.

At the Cape of Good Hope the eclipse will be partial; the first contact will occur at 62° from the northern point of the Sun's disc towards the west, at $5^{\text{h}} 28^{\text{m}} \cdot 0$ mean time at the Cape, and the Sun will set at $6^{\text{h}} 25^{\text{m}}$, or $3^{\text{m}} \cdot 5$ before the time of greatest phase.

PATH OF THE MOON'S PENUMBRA UPON THE SURFACE OF THE EARTH,
DURING THE ANNULAR ECLIPSE OF THE SUN, OCTOBER 30, 1864.



ELEMENTS OF OCCULTATIONS, 1864. 437.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R.A. of (and #.	At Greenwich Mean Time of ♂			Limiting Parallels.
				Apparent R.A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.	
			h m s	h m s	° ' "	° ' "	Latitude.
Jan. 1	χ Virginis -	5	18 05.1	12 32 15.08	S. 7 14 50.2	S. 18 17	17 N. 57 S.
2	ψ Virginis -	5	1 37 0	12 47 18.02	8 48 1.9	S. 3 57	31 N. 41 S.
2	α Virginis -	1	16 46 40	13 18 2.65	10 27 3.7	S. 56 58	25 S. 90 S.
2	i Virginis -	5	17 30 34	13 19 33.32	11 59 56.5	N. 28 47	64 N. 9 S.
4	♌ Libræ -	4½	17 9 11	15 4 28.97	S. 19 16 24.5	N. 69 29	71 N. 42 N.
5	κ Libræ -	5	5 33 49	15 34 7.23	S. 19 14 2.9	S. 5 11	18 N. 42 S.
5	β♌ Scorpii -	2	15 6 2	15 57 32.08	19 25 44.5	S. 37 24	14 S. 85 S.
5	ω♌ Scorpii -	4½	15 38 1	15 58 51.56	20 17 46.6	N. 12 30	33 N. 25 S.
5	ω♌ Scorpii -	4½	15 51 56	15 59 26.16	20 29 48.0	N. 23 36	45 N. 14 S.
5	ν Scorpii -	4	17 44 10	16 4 5.85	S. 19 6 10.3	S. 67 10	49 S. 90 S.
5	B.A.C. 5395	6	18 22 22	16 5 41.32	S. 21 2 57.2	N. 47 17	69 N. 10 N.
5	φ Ophiuchi	5	22 32 12	16 16 8.94	19 42 52.7	S. 46 44	24 S. 90 S.
6	ω Ophiuchi	5	1 40 13	16 24 4.80	21 10 16.6	N. 31 40	52 N. 7 S.
6	ξ Ophiuchi	5	20 34 43	17 12 51.20	20 57 43.0	S. 6 0	9 N. 43 S.
11	ξ Aquarii -	4½	0 39 29	21 30 30.47	S. 8 27 39.7	S. 56 21	18 S. 90 S.
12	κ Aquarii -	5	2 17 10	22 30 42.76	S. 4 55 38.2	N. 56 9	85 N. 15 N.
13	κ Piscium -	4½	0 2 17	23 19 57.97	N. 0 30 46.2	N. 11 52	48 N. 26 S.
13	16 Piscium -	6	4 17 50	23 29 27.41	1 20 58.0	N. 16 15	53 N. 22 S.
13	λ Piscium -	5	6 50 43	23 35 6.86	1 1 59.0	N. 67 41	90 N. 31 N.
15	μ Piscium -	6	11 24 17	1 29 54.71	N. 11 26 47.6	N. 46 30	90 N. 12 N.
17	δ Arietis -	4½	6 33 32	3 3 53.18	N. 19 12 39.6	S. 72 19	60 S. 71 S.
18	ω♌ Tauri -	6	8 44 25	4 1 16.90	N. 19 14 48.6	N. 50 6	90 N. 30 N.
19	i Tauri -	5	9 15 55	4 55 0.51	21 23 30.6	S. 26 12	10 N. 46 S.
19	l Tauri -	5½	11 27 37	4 59 48.00	20 14 5.8	N. 44 50	90 N. 30 N.
20	ζ Tauri -	3½	1 8 53	5 29 33.62	N. 21 3 18.4	S. 5 33	31 N. 22 S.
20	χ♌ Orionis -	4½	8 55 56	5 46 22.25	N. 20 14 45.8	N. 33 48	84 N. 16 N.
20	χ♌ Orionis -	5	13 9 23	5 55 27.08	19 41 13.4	N. 59 48	90 N. 47 N.
20	χ♌ Orionis -	5	13 21 33	5 55 53.20	20 8 11.2	N. 32 26	81 N. 14 N.
20	68 Orionis -	6	17 9 10	6 4 0.71	19 48 54.9	N. 43 22	90 N. 25 N.
21	ν Geminor.	4½	1 5 44	6 20 55.86	N. 20 17 33.9	S. 7 14	29 N. 28 S.
24	α Cancri -	4	3 8 4	8 51 5.31	N. 12 22 41.0	N. 13 1	51 N. 19 S.
24	κ Cancri -	5	7 58 29	9 0 25.28	11 12 34.6	N. 40 52	90 N. 9 N.
24	ω Leonis -	6	18 51 3	9 21 12.83	9 38 33.4	N. 35 59	86 N. 3 N.
25	μ Leonis -	5	11 43 35	9 53 3.81	8 41 27.4	S. 69 44	49 S. 81 S.
25	14 Sextantis	6	15 16 42	9 59 42.97	N. 6 16 9.2	N. 40 6	90 N. 5 N.
26	B.A.C. 3726	6	15 45 16	10 45 16.61	N. 1 44 39.5	N. 58 58	90 N. 27 N.
26	55 Leonis -	6	17 37 29	10 48 44.93	1 27 28.9	N. 56 24	90 N. 24 N.
27	p♌ Leonis -	5	3 21 54	11 6 50.37	N. 0 39 57.4	N. 0 31	37 N. 36 S.
29	χ Virginis -	5	0 36 49	12 32 15.94	S. 7 14 56.0	S. 3 4	32 N. 40 S.
29	ψ Virginis -	5	8 20 42	12 47 18.86	S. 8 48 7.4	N. 11 29	46 N. 25 S.
29	α Virginis -	1	23 49 28	13 18 3.52	S. 10 27 8.9	S. 41 18	8 S. 90 S.
30	i Virginis -	5	0 34 26	13 19 34.22	12 0 2.1	N. 44 28	78 N. 8 N.
Feb. 1	JUPITER -	-	13 46 13	15 32 19.27	18 3 46.4	S. 57 47	35 S. 90 S.
1	κ Libræ -	5	14 32 45	15 34 8.10	19 14 6.1	N. 8 36	31 N. 28 S.
2	β♌ Scorpii -	2	0 26 4	15 57 32.95	S. 19 25 47.4	S. 24 19	1 S. 64 S.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of (and *.)	At Greenwich Mean Time of ♂			Limiting Parallels.
			Apparent R.A. of (and *.)	Apparent Declination of *.)	Diff. of Apparent Dec. of (and *.)		
			h m s	h m s	° ' "	° ' "	Latitude.
Feb. 2	♂ Scorpii -	4½	0 59 15	15 58 52.45	S. 20 17 49.4	N. 25 32	48 N. 12 S.
2	♂ Scorpii -	4½	1 13 40	15 59 27.05	20 29 50.8	N. 36 38	62 N. 1 S.
2	γ Scorpii -	4	3 10 0	16 4 6.72	19 6 13.1	S. 54 18	33 S. 90 S.
2	ψ Ophiuchi	5	8 8 30	16 16 9.79	19 42 55.3	S. 34 16	12 S. 79 S.
2	ω Ophiuchi	5	11 23 16	16 24 5.63	S. 21 10 18.7	N. 43 51	69 N. 7 N.
3	ξ Ophiuchi	5	6 56 11	17 12 51.97	S. 20 57 44.5	N. 4 16	19 N. 33 S.
3	58 Ophiuchi	5	15 44 7	17 35 17.41	21 36 41.6	N. 48 9	68 N. 11 N.
4	μ Sagittarii	4	3 31 5	18 5 38.12	21 5 22.9	N. 40 55	65 N. 2 N.
4	15 Sagittarii	5	4 5 11	18 7 6.33	20 45 51.7	N. 23 4	42 N. 15 S.
4	21 Sagittarii	5	8 0 18	18 17 15.32	S. 20 36 34.9	N. 26 37	47 N. 12 S.
4	29 Sagittarii	6	17 22 58	18 41 36.05	S. 20 28 28.2	N. 58 17	70 N. 21 N.
5	δ Sagittarii	5	4 11 41	19 9 40.69	19 11 24.0	N. 42 43	70 N. 3 N.
5	ρ Sagittarii	4	5 46 40	19 13 47.00	S. 18 5 54.7	S. 12 23	14 N. 49 S.
9	κ Piscium -	4½	9 48 13	23 19 57.80	N. 0 30 44.4	S. 0 8	37 N. 37 S.
9	λ Piscium -	5	16 21 57	23 35 6.66	N. 1 1 57.3	N. 54 53	90 N. 14 N.
10	δ Piscium -	4½	21 34 28	0 41 38.21	N. 6 50 42.3	N. 70 41	90 N. 39 N.
15	γ Tauri -	5	15 9 35	4 55 0.17	21 23 30.2	S. 40 0	5 S. 68 S.
16	ζ Tauri -	3½	7 1 6	5 29 33.33	21 3 18.3	S. 18 8	18 N. 36 S.
16	χ Orionis -	4½	14 48 34	5 46 21.99	20 14 45.6	N. 21 52	63 N. 4 N.
16	χ Orionis -	6	15 4 25	5 46 56.05	N. 19 43 5.9	N. 53 8	90 N. 38 N.
16	χ Orionis -	5	19 2 30	5 55 26.84	N. 19 41 13.2	N. 48 15	90 N. 32 N.
16	χ Orionis -	5	19 14 42	5 55 52.96	20 8 11.1	N. 20 53	61 N. 2 N.
17	γ Geminor.	4½	7 0 58	6 20 55.66	20 17 34.0	S. 17 40	18 N. 39 S.
20	60 Cancri -	6	7 58 3	8 48 32.50	12 8 21.4	N. 36 41	88 N. 6 N.
20	α Cancri -	4	9 17 5	8 51 5.45	N. 12 22 39.8	N. 11 16	49 N. 20 S.
20	κ Cancri -	5	14 7 21	9 0 25.43	N. 11 12 33.2	N. 39 46	90 N. 8 N.
21	π Leonis -	5	17 47 58	9 53 4.09	8 41 25.4	S. 67 3	43 S. 81 S.
23	ρ Leonis -	5	9 11 48	11 6 50.81	N. 0 39 53.9	N. 8 28	45 N. 28 S.
25	χ Virginis -	5	6 12 28	12 32 16.56	S. 7 15 0.4	N. 9 52	45 N. 27 S.
25	ψ Virginis -	5	13 55 49	12 47 19.51	S. 8 48 12.0	N. 25 6	62 N. 12 S.
26	α Virginis -	1	5 26 18	13 18 4.24	S. 10 27 13.6	S. 26 31	7 N. 67 S.
26	δ Virginis -	5	6 11 27	13 19 34.93	12 0 6.7	N. 59 18	78 N. 27 N.
27	α Libræ -	2½	22 19 19	14 43 23.65	15 28 34.5	S. 64 18	43 S. 90 S.
28	κ Libræ -	5	21 7 5	15 34 8.96	19 14 9.5	N. 25 18	50 N. 11 S.
29	JUPITER -	-	0 13 39	15 41 15.42	S. 18 30 39.9	S. 33 0	9 S. 78 S.
29	β Scorpii -	2	7 17 27	15 57 33.82	S. 19 25 50.2	S. 7 46	14 N. 45 S.
29	♂ Scorpii -	4½	7 51 39	15 58 53.32	20 17 52.2	N. 42 5	70 N. 6 N.
29	♂ Scorpii -	4½	8 6 31	15 59 27.92	20 29 53.6	N. 53 10	70 N. 19 N.
29	γ Scorpii -	4	10 6 26	16 4 7.59	19 6 15.8	S. 37 48	15 S. 88 S.
29	ψ Ophiuchi	5	15 14 30	16 16 10.66	S. 19 42 57.7	S. 17 54	3 N. 56 S.
29	ω Ophiuchi	5	18 35 45	16 24 6.50	S. 21 10 21.0	N. 60 7	69 N. 28 N.
Mar. 1	ξ Ophiuchi	5	14 50 47	17 12 52.81	20 57 45.8	N. 19 39	35 N. 17 S.
1	B. A. C. 5866	6	16 21 47	17 16 35.23	21 18 37.8	N. 40 30	64 N. 4 N.
1	58 Ophiuchi	5	23 58 58	17 35 18.27	21 36 42.5	N. 62 59	68 N. 31 N.
2	μ Sagittarii	4	12 13 32	18 5 38.91	S. 21 5 23.2	N. 54 51	69 N. 19 N.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of ♄ and ♀.	At Greenwich Mean Time of ♄			Limiting Parallels.
				Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
			h m s	h m s	° ' "	♄	Latitude.
Mar. 2	15 Sagittarii	5	12 48 58	18 7 7.12	S. 20 45 52.0	N. 36 57	60 N. 1 S.
2	21 Sagittarii	5	16 53 15	18 17 16.08	20 36 35.1	N. 40 9	66 N. 2 N.
3	d Sagittarii	5	13 50 20	19 9 41.36	19 11 23.5	N. 54 10	71 N. 17 N.
3	e Sagittarii	4	15 28 44	19 13 47.66	18 5 54.3	S. 1 8	24 N. 38 S.
3	B.A.C. 6658	6	18 1 59	19 20 11.21	S. 18 37 45.3	N. 47 16	71 N. 9 N.
3	e Sagittarii	5	23 51 30	19 34 44.93	S. 16 26 15.8	S. 43 24	14 S. 90 S.
4	β Capricor.	3	15 22 41	20 13 22.52	15 12 23.8	N. 11 13	39 N. 26 S.
5	γ Aquarii	4½	11 12 41	21 2 11.22	S. 11 55 8.1	N. 15 9	47 N. 23 S.
9	δ Piscium	4½	8 0 32	0 41 38.02	N. 6 50 40.8	N. 60 20	90 N. 24 N.
13	ε Tauri -	3½	7 12 47	4 20 41.98	N. 18 52 29.9	N. 67 56	90 N. 58 N.
13	ι Tauri -	5	22 27 48	4 54 59.68	N. 21 23 29.6	S. 55 41	25 S. 69 S.
14	ζ Tauri -	3½	14 3 19	5 29 32.85	21 3 17.9	S. 33 28	2 N. 56 S.
14	χ ¹ Orionis	4½	21 44 28	5 46 21.52	20 14 45.4	N. 6 48	44 N. 11 S.
15	χ ² Orionis	5	1 55 23	5 55 26.36	19 41 13.1	N. 33 20	81 N. 15 N.
15	χ ³ Orionis	5	2 7 27	5 55 52.48	N. 20 8 11.0	N. 5 59	43 N. 12 S.
15	γ ¹ Orionis	5½	7 13 23	6 6 52.67	N. 19 11 47.3	N. 51 26	90 N. 34 N.
15	γ Geminor.	4½	13 46 51	6 20 55.21	20 17 34.1	S. 32 4	3 N. 58 S.
18	α ¹ Cancri	6	7 59 59	8 35 44.83	13 9 45.2	N. 19 49	59 N. 11 S.
18	α ² Cancri	6	9 56 10	8 39 30.97	12 36 8.6	N. 37 57	90 N. 8 N.
18	α Cancri	4	15 54 20	8 51 5.24	N. 12 22 40.0	N. 2 25	39 N. 29 S.
18	κ Cancri	5	20 44 52	9 0 25.26	N. 11 12 33.2	N. 31 25	76 N. 0
19	α Leonis -	6	7 36 45	9 21 12.91	9 38 31.3	N. 29 9	72 N. 4 S.
20	π Leonis -	5	0 25 20	9 53 4.04	8 41 25.0	S. 72 22	61 S. 81 S.
21	ρ ¹ Leonis -	6	10 16 24	10 56 41.78	0 43 32.0	N. 61 2	90 N. 31 N.
21	ρ ² Leonis -	5	15 39 57	11 6 50.93	N. 0 39 52.3	N. 7 56	45 N. 28 S.
23	χ Virginis	5	12 15 32	12 32 16.89	S. 7 15 3.1	N. 14 42	50 N. 22 S.
23	ψ Virginis	5	19 53 40	12 47 19.88	8 48 14.9	N. 30 46	70 N. 6 S.
24	α Virginis	1	11 13 39	13 18 4.68	10 27 16.5	S. 19 15	14 N. 57 S.
24	i Virginis	5	11 58 18	13 19 35.38	12 0 9.9	N. 66 39	78 N. 39 N.
24	B.A.C. 4531	6	15 51 11	13 27 30.28	S. 12 31 11.8	N. 61 36	77 N. 31 N.
26	α ¹ Libræ -	2½	3 45 32	14 43 24.31	S. 15 28 37.4	S. 53 40	27 S. 90 S.
27	κ Libræ -	5	2 30 54	15 34 9.73	19 14 11.9	N. 37 12	66 N. 1 N.
27	JUPITER -	-	5 32 17	15 41 3.41	18 26 33.2	S. 24 41	1 S. 65 S.
27	β ¹ Scorpii	2	12 43 21	15 57 34.58	19 25 52.3	N. 4 34	26 N. 32 S.
27	B.A.C. 5330	5½	12 43 33	15 57 35.06	S. 19 25 41.4	N. 4 22	25 N. 32 S.
27	α ² Scorpii	4½	13 17 43	15 58 54.09	S. 20 17 54.3	N. 54 26	70 N. 22 N.
27	α ³ Scorpii	4½	13 32 40	15 59 28.69	20 29 55.8	N. 65 32	70 N. 39 N.
27	γ Scorpii	4	15 33 18	16 4 8.36	19 6 17.8	S. 25 22	3 S. 66 S.
27	ψ Ophiuchi	5	20 43 35	16 16 11.45	19 42 59.6	S. 5 19	15 N. 42 S.
28	α Ophiuchi	5	0 6 37	16 24 7.34	S. 21 10 22.9	N. 72 48	69 N. 61 N.
28	B.A.C. 5758	6	14 27 36	16 58 7.21	S. 21 22 17.8	N. 60 10	69 N. 29 N.
28	ξ Ophiuchi	5	20 37 52	17 12 53.65	20 57 46.6	N. 32 41	52 N. 4 S.
29	μ ¹ Sagittarii	4	18 27 59	18 5 39.75	21 5 23.0	N. 67 50	69 N. 41 N.
29	15 Sagittarii	5	19 4 19	18 7 7.96	20 45 51.8	N. 49 56	69 N. 14 N.
29	21 Sagittarii	5	23 14 58	18 17 16.92	S. 20 36 34.7	N. 53 4	69 N. 18 N.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of (and #.	At Greenwich Mean Time of ♂			Limiting Parallels.
			Apparent R. A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.		
			h m s	h m s	° ' "	° ' "	Latitude.
Mar. 30	d Sagittarii	5	20 49 34	19 9 42.15	S. 19 11 22.2	N. 66 28	71 N. 36 N.
30	p Sagittarii	4	22 31 10	19 13 48.44	18 5 53.0	N. 11 6	35 N. 26 S.
31	e Sagittarii	5	7 10 53	19 34 45.71	16 26 14.3	S. 31 33	3 S. 73 S.
31	β Capricor.	3	23 14 55	20 13 23.21	15 12 21.8	N. 22 6	51 N. 16 S.
Apr. 1	ν Aquarii	4½	19 47 27	21 2 11.82	S. 11 55 5.9	N. 24 24	56 N. 14 S.
2	ξ Aquarii	4½	7 50 38	21 30 31.41	S. 8 27 38.1	S. 50 12	13 S. 90 S.
3	κ Aquarii	5	9 44 16	22 30 43.25	S. 4 55 37.5	N. 50 47	85 N. 11 N.
4	κ Piscium	4½	7 6 10	23 19 58.11	N. 0 30 44.7	S. 2 48	34 N. 39 S.
9	ε Tauri	3½	16 24 41	4 20 41.58	18 52 28.9	N. 58 12	90 N. 41 N.
10	ι Tauri	5	7 19 14	4 54 59.22	N. 21 23 28.6	S. 65 54	42 S. 69 S.
10	ζ Tauri	3½	22 34 48	5 29 32.37	N. 21 3 17.4	S. 44 1	10 S. 69 S.
11	χ Orionis	4½	6 6 45	5 46 21.01	20 14 45.0	S. 3 52	32 N. 21 S.
11	χ Orionis	6	6 22 5	5 46 55.07	19 43 5.3	N. 27 25	70 N. 9 N.
11	χ Orionis	5	10 12 54	5 55 25.87	19 41 12.8	N. 22 38	63 N. 4 N.
11	χ Orionis	5	10 24 44	5 55 51.98	N. 20 8 10.6	S. 4 43	31 N. 23 S.
11	ν Geminor.	4½	21 51 49	6 20 54.71	N. 20 17 34.0	S. 42 50	9 S. 70 S.
14	α Cancri	4	23 20 51	8 51 4.85	12 22 40.8	S. 6 48	29 N. 38 S.
15	κ Cancri	5	4 11 2	9 0 24.87	11 12 34.1	N. 22 25	62 N. 10 S.
16	14 Sextantis	6	11 24 24	9 59 42.94	6 16 6.6	N. 31 1	75 N. 4 S.
17	B.A.C. 3726	6	11 41 7	10 45 16.89	N. 1 44 34.8	N. 57 42	90 N. 26 N.
17	55 Leonis	6	13 32 5	10 48 45.24	N. 1 27 24.1	N. 55 44	90 N. 23 N.
17	p Leonis	5	23 9 3	11 6 50.80	N. 0 39 52.4	N. 2 58	39 N. 33 S.
19	χ Virginis	5	19 34 50	12 32 16.06	S. 7 15 4.1	N. 13 7	48 N. 23 S.
20	ψ Virginis	5	3 9 14	12 47 20.00	8 48 16.1	N. 29 46	68 N. 7 S.
20	g Virginis	6	9 51 49	13 0 49.53	S. 10 1 2.2	N. 36 7	77 N. 1 S.
20	α Virginis	1	18 19 51	13 18 4.89	S. 10 27 17.9	S. 19 8	14 N. 57 S.
20	ι Virginis	5	19 3 59	13 19 35.58	12 0 11.4	N. 66 50	78 N. 40 N.
22	α Libræ	2½	10 17 1	14 43 24.72	15 28 39.0	S. 50 52	24 S. 90 S.
22	B.A.C. 4896	6	10 33 45	14 44 1.90	17 13 31.5	N. 52 5	73 N. 18 N.
23	JUPITER	-	7 47 58	15 32 10.24	S. 17 54 28.6	S. 34 14	9 S. 80 S.
23	κ Libræ	5	8 39 55	15 34 10.28	S. 19 14 13.4	N. 41 15	71 N. 5 N.
23	λ Libræ	6	13 32 41	15 45 30.04	19 45 32.5	N. 49 56	70 N. 15 N.
23	β Scorpïi	2	18 42 36	15 57 35.18	19 25 53.5	N. 9 6	30 N. 27 S.
23	α Scorpïi	4½	19 16 27	15 58 54.70	20 17 55.6	N. 58 59	70 N. 27 N.
23	α Scorpïi	4½	19 31 10	15 59 29.31	S. 20 29 57.1	N. 70 6	70 N. 48 N.
23	ν Scorpïi	4	21 29 57	16 4 8.98	S. 19 6 18.9	S. 20 43	1 N. 59 S.
24	ψ Ophiuchi	5	2 35 39	16 16 12.12	19 43 0.6	S. 0 27	19 N. 37 S.
25	ξ Ophiuchi	5	2 12 9	17 12 54.42	20 57 46.8	N. 38 24	61 N. 2 N.
25	μ Sagittarii	4	23 53 26	18 5 40.55	21 5 22.3	N. 74 4	69 N. 61 N.
26	15 Sagittarii	5	0 29 39	18 7 8.79	S. 20 45 51.0	N. 56 10	69 N. 22 N.
26	21 Sagittarii	5	4 39 42	18 17 17.77	S. 20 36 33.7	N. 59 23	69 N. 26 N.
27	d Sagittarii	5	2 17 9	19 9 43.01	19 11 20.1	N. 73 1	71 N. 51 N.
27	p Sagittarii	4	3 59 26	19 13 49.30	18 5 50.8	N. 17 40	42 N. 19 S.
27	e Sagittarii	5	12 43 34	19 34 46.53	16 26 11.8	S. 25 0	3 N. 64 S.
28	β Capricor.	3	5 0 24	20 13 24.05	S. 15 12 18.7	N. 28 34	59 N. 9 S.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ☉ in R.A. of (and #.	At Greenwich Mean Time of ☉			Limiting Parallels.
				Apparent R.A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.	
			h m s	h m s	° ' "	° ' "	Latitude.
Apr. 29	♈ Aquarii -	4½	1 57 13	21 2 12.60	S. 11 55 2.3	N. 30 31	64 N. 8 S.
29	ξ Aquarii -	4½	14 18 9	21 30 32.13	8 27 34.6	S. 44 25	8 S. 90 S.
29	♄ Capricor.	6	17 28 50	21 37 46.64	9 42 11.6	N. 65 47	80 N. 30 N.
30	♈ Aquarii -	5	16 55 42	22 30 43.88	S. 4 55 34.0	N. 55 36	85 N. 17 N.
May 1	♈ Piscium -	4½	14 55 58	23 19 58.65	N. 0 30 47.6	N. 0 58	37 N. 35 S.
1	λ Piscium -	5	21 42 27	23 35 7.38	N. 1 2 0.3	N. 53 42	90 N. 15 N.
3	♄ Piscium -	4½	3 19 9	0 41 38.47	6 50 42.7	N. 60 4	90 N. 25 N.
7	♉ Tauri -	5	16 37 35	4 54 59.01	21 23 27.8	S. 68 21	48 S. 69 S.
8	ζ Tauri -	3½	7 42 8	5 29 32.08	21 3 16.7	S. 46 44	13 S. 69 S.
8	♈ Orionis -	4½	15 8 4	5 46 20.71	N. 20 14 44.6	S. 6 41	29 N. 24 S.
8	♈ Orionis -	5	19 10 50	5 55 25.56	N. 19 41 12.5	N. 19 45	59 N. 1 N.
8	♈ Orionis -	5	19 22 30	5 55 51.67	20 8 10.3	S. 7 36	28 N. 26 S.
9	♊ Geminor.	4½	6 39 57	6 20 54.35	20 17 33.8	S. 45 49	12 S. 70 S.
10	λ Geminor.	3½	5 34 25	7 10 17.85	16 46 48.0	N. 69 37	90 N. 62 N.
12	α Cancri -	4	7 22 25	8 51 4.43	N. 12 22 42.0	S. 9 42	26 N. 42 S.
12	κ Cancri -	5	12 11 24	9 0 24.46	N. 11 12 35.2	N. 19 34	58 N. 13 S.
15	♌ Leonis -	5	7 17 18	11 6 50.52	N. 0 39 53.5	N. 1 6	37 N. 35 S.
17	χ Virginis -	5	3 57 13	12 32 16.85	S. 7 15 3.7	N. 11 59	47 N. 24 S.
17	ψ Virginis -	5	11 32 56	12 47 19.92	8 48 16.0	N. 28 45	67 N. 8 S.
18	α Virginis -	1	2 44 24	13 18 4.88	S. 10 27 17.9	S. 19 56	13 N. 58 S.
18	ι Virginis -	5	3 28 30	13 19 35.57	S. 12 0 11.7	N. 66 2	78 N. 38 N.
18	B.A.C. 4531	6	7 18 20	13 27 30.51	12 31 13.7	N. 61 19	77 N. 30 N.
19	♌ Libræ -	2½	18 28 54	14 43 24.93	15 28 39.4	S. 51 16	24 S. 90 S.
20	JUPITER -	-	9 54 15	15 18 36.77	17 6 16.0	S. 51 39	26 S. 90 S.
20	κ Libræ -	5	16 34 14	15 34 10.62	S. 19 14 14.0	N. 40 56	70 N. 4 N.
21	♏ Scorpii -	2	2 26 49	15 57 35.61	S. 19 25 53.9	N. 8 47	30 N. 28 S.
21	♏ Scorpii -	4½	3 0 3	15 58 55.13	20 17 56.2	N. 58 41	70 N. 26 N.
21	♏ Scorpii -	4½	3 14 30	15 59 29.74	20 29 57.7	N. 69 48	70 N. 46 N.
21	♏ Scorpii -	4	5 11 7	16 4 9.42	19 6 19.2	S. 21 1	1 N. 59 S.
21	ψ Ophiuchi	5	10 11 2	16 16 12.57	S. 19 43 0.9	S. 0 45	19 N. 37 S.
22	ξ Ophiuchi	5	9 17 50	17 12 55.01	S. 20 57 46.6	N. 38 2	60 N. 1 N.
22	B.A.C. 5866	6	10 47 30	17 16 37.44	21 18 38.4	N. 58 55	69 N. 26 N.
23	♐ Sagittarii	4	6 29 44	18 5 41.27	21 5 21.2	N. 73 34	69 N. 55 N.
23	15 Sagittarii	5	7 5 8	18 7 9.49	20 45 49.9	N. 55 40	69 N. 21 N.
23	21 Sagittarii	5	11 9 35	18 17 18.48	S. 20 36 32.4	N. 58 51	69 N. 25 N.
24	♐ Sagittarii	5	8 19 40	19 9 43.79	S. 19 11 17.9	N. 72 17	71 N. 47 N.
24	♐ Sagittarii	4	9 59 57	19 13 50.08	18 5 48.4	N. 16 55	41 N. 20 S.
24	B.A.C. 6658	6	12 36 27	19 20 13.64	18 37 39.1	N. 65 11	71 N. 33 N.
24	♐ Sagittarii	5	18 34 32	19 34 47.33	16 26 8.9	S. 25 50	3 N. 64 S.
25	♏ Capricor.	3	10 36 35	20 13 24.87	S. 15 12 15.2	N. 27 33	57 N. 10 S.
26	♈ Aquarii -	4½	7 21 40	21 2 13.43	S. 11 54 58.1	N. 29 17	63 N. 9 S.
26	ξ Aquarii -	4½	19 40 8	21 30 32.95	8 27 30.1	S. 45 46	9 S. 90 S.
27	♈ Aquarii -	5	22 24 16	22 30 44.67	S. 4 55 29.2	N. 54 4	85 N. 15 N.
28	κ Piscium -	4½	20 41 29	23 19 59.39	N. 0 30 52.1	S. 0 35	36 N. 37 S.
29	λ Piscium -	5	3 34 59	23 35 8.14	N. 1 2 5.0	N. 52 9	90 N. 14 N.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of	At Greenwich Mean Time of ☿			Limiting Parallels.
			Apparent ☿ in R. A. of (and #.	Apparent R. A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.	
			h m s	h m s	° ' "	° ' "	Latitude.
May 30	♂ Piscium -	4½	9 49 3	0 41 39.12	N. 6 50 46.4	N. 58 43	90 N. 23 N.
June 8	A' Cancrī -	6	9 26 27	8 39 29.88	12 36 11.6	N. 30 2	74 N. 1 S.
8	α Cancrī -	4	15 20 6	8 51 4.15	12 22 43.1	S. 5 3	31 N. 37 S.
8	κ Cancrī -	5	20 7 40	9 0 24.18	11 12 36.4	N. 24 20	65 N. 8 S.
11	p' Leonis -	6	9 51 30	10 56 41.01	N. 0 43 34.8	N. 59 27	90 N. 29 N.
11	p' Leonis -	5	15 19 16	11 6 50.22	N. 0 39 55.1	N. 6 51	43 N. 29 S.
13	χ Virginis -	5	12 29 18	12 32 16.62	S. 7 15 2.5	N. 17 21	53 N. 19 S.
13	ψ Virginis -	5	20 11 10	12 47 19.71	8 48 14.9	N. 33 58	75 N. 3 S.
14	α Virginis -	1	11 34 45	13 18 4.71	10 27 17.0	S. 15 9	18 N. 52 S.
14	i Virginis -	5	12 19 25	13 19 35.41	S. 12 0 10.9	N. 70 48	78 N. 49 N.
16	α' Libræ -	2½	3 43 25	14 43 24.93	S. 15 28 39.0	S. 48 8	20 S. 90 S.
16	JUPITER -	-	14 6 3	15 6 51.58	16 24 48.9	S. 60 31	37 S. 90 S.
17	κ Libræ -	5	1 52 44	15 34 10.74	19 14 14.1	N. 42 53	71 N. 7 N.
17	β' Scorpii -	2	11 44 7	15 57 35.77	19 25 53.9	N. 10 8	31 N. 26 S.
17	ω' Scorpii -	4½	12 17 13	15 58 55.30	S. 20 17 56.3	N. 60 1	70 N. 28 N.
17	ω' Scorpii -	4½	12 31 37	15 59 29.91	S. 20 29 57.8	N. 71 6	70 N. 49 N.
17	ν' Scorpii -	4	14 27 44	16 4 9.60	19 6 19.1	S. 19 50	2 N. 58 S.
17	ψ Ophiuchi	5	19 26 0	16 16 12.78	19 43 0.8	N. 0 8	20 N. 36 S.
18	B.A.C. 5758	6	12 24 52	16 58 8.84	21 22 18.2	N. 65 7	69 N. 35 N.
18	ξ Ophiuchi	5	18 18 23	17 12 55.37	S. 20 57 46.3	N. 37 24	58 N. 0
19	B.A.C. 6098	6	10 45 29	17 54 34.45	S. 20 43 55.9	N. 39 34	63 N. 2 N.
19	μ' Sagittarii	4	15 7 43	18 5 41.75	21 5 20.4	N. 71 29	69 N. 46 N.
19	15 Sagittarii	5	15 42 21	18 7 9.97	20 45 49.0	N. 53 32	69 N. 17 N.
19	21 Sagittarii	5	19 41 31	18 17 18.99	20 36 31.4	N. 56 26	69 N. 21 N.
20	d Sagittarii	5	16 20 21	19 9 44.41	S. 19 11 16.0	N. 68 23	71 N. 37 N.
20	p' Sagittarii	4	17 57 57	19 13 50.70	S. 18 5 46.3	N. 12 53	36 N. 24 S.
21	e' Sagittarii	5	2 18 24	19 34 48.01	16 26 6.3	S. 30 27	1 S. 70 S.
21	β Capricor.	3	17 52 58	20 13 25.58	15 12 12.1	N. 21 53	50 N. 16 S.
22	ν Aquarii -	4½	14 2 39	21 2 14.20	11 54 54.1	N. 22 23	54 N. 16 S.
23	ξ Aquarii -	4½	2 1 26	21 30 33.77	S. 8 27 25.3	S. 53 18	16 S. 90 S.
24	κ Aquarii -	5	4 9 39	22 30 45.52	S. 4 55 23.8	N. 45 32	77 N. 6 N.
25	κ Piscium -	4½	2 7 6	23 20 0.26	S. 0 30 57.7	N. 52 26	89 N. 13 N.
25	λ Piscium -	5	8 56 40	23 35 8.98	N. 1 2 10.4	N. 43 13	90 N. 4 N.
26	62 Piscium -	6	14 55 40	0 41 16.40	6 33 40.2	N. 65 24	90 N. 32 N.
26	δ Piscium -	4½	15 6 20	0 41 39.93	N. 6 50 51.4	N. 50 13	90 N. 14 N.
30	B.A.C. 1361	6	15 8 15	4 17 3.31	N. 18 43 34.9	N. 58 24	90 N. 41 N.
30	♄ Tauri -	3½	16 44 26	4 20 42.19	18 52 30.2	N. 53 57	90 N. 36 N.
July 1	♄ Tauri -	5	7 50 17	4 54 59.61	21 23 28.3	S. 68 51	51 S. 69 S.
5	α Cancrī -	4	22 37 33	8 51 4.07	12 22 43.9	N. 2 30	39 N. 29 S.
6	κ Cancrī -	5	3 24 19	9 0 24.08	N. 11 12 37.4	N. 32 15	77 N. 1 N.
7	♄ Leonis -	5	6 56 7	9 53 2.88	N. 8 41 30.0	S. 67 16	44 S. 81 S.
8	p' Leonis -	5	22 35 56	11 6 49.96	N. 0 39 56.9	N. 18 37	57 N. 17 S.
9	♄ Leonis -	4½	11 6 57	11 30 1.01	S. 0 4 37.0	S. 65 7	38 S. 90 S.
10	χ Virginis -	5	20 14 33	12 32 16.33	7 15 0.7	N. 29 52	70 N. 6 S.
11	ψ Virginis -	5	4 4 9	12 47 19.41	S. 8 48 13.1	N. 46 24	81 N. 11 N.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of ☾ and ♀.	At Greenwich Mean Time of ☾			Limiting Parallels.
			Apparent R. A. of ☾ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ☾ and ♀.		
			h m s	h m s	° ' "	° ' "	Latitude. ° ' "
July 11	α Virginis -	1	19 45 3	13 18 4.44	S. 10 27 15.5	S. 2 59	30 N. 39 S.
13	α ² Libræ -	2½	12 45 48	14 43 24.74	15 28 38.0	S. 37 47	9 S. 88 S.
13	γ ¹ Libræ -	5	19 53 11	14 59 6.05	15 43 46.3	S. 70 10	55 S. 90 S.
13	JUPITER -	-	21 15 36	15 2 9.47	16 12 20.2	S. 50 19	24 S. 90 S.
14	41 Libræ - -	6	10 33 32	15 31 8.68	S. 18 51 8.5	N. 35 14	63 N. 1 S.
14	κ Libræ -	5	11 22 31	15 34 10.61	S. 19 14 13.6	N. 51 38	71 N. 17 N.
14	β ² Scorpii -	2	21 24 25	15 57 35.69	19 25 53.5	N. 18 3	40 N. 18 S.
14	ω ² Scorpii -	4½	21 58 4	15 58 55.22	20 17 56.0	N. 67 52	70 N. 42 N.
15	ν Scorpii -	4	0 10 42	16 4 9.52	19 6 18.7	S. 12 10	9 N. 49 S.
15	ψ Ophiuchi	5	5 13 31	16 16 12.73	S. 19 43 0.4	N. 7 19	27 N. 29 S.
16	ξ Ophiuchi	5	4 20 40	17 12 55.44	S. 20 57 46.1	N. 42 14	68 N. 5 N.
17	μ ¹ Sagittarii	4	1 12 54	18 5 41.95	21 5 20.0	N. 73 55	69 N. 53 N.
17	15 Sagittarii	5	1 47 28	18 7 10.17	20 45 48.6	N. 55 54	69 N. 20 N.
17	21 Sagittarii	5	5 45 52	18 17 19.21	20 36 30.9	N. 58 19	69 N. 23 N.
18	d Sagittarii	5	2 14 4	19 9 44.76	S. 19 11 14.9	N. 67 38	71 N. 35 N.
18	ρ ¹ Sagittarii	4	3 50 22	19 13 51.06	S. 18 5 45.0	N. 11 56	35 N. 25 S.
18	e ² Sagittarii	5	12 3 4	19 34 48.40	16 26 4.6	S. 32 30	3 S. 73 S.
19	β Capricor.	3	3 18 52	20 13 26.08	15 12 9.8	N. 17 47	46 N. 20 S.
19	ν Aquarii -	4½	22 57 8	21 2 14.77	11 54 50.9	N. 15 41	47 N. 22 S.
20	ξ Aquarii -	4½	10 34 23	21 30 34.38	S. 8 27 21.6	S. 61 28	25 S. 90 S.
20	c ² Capricor.	6	13 34 22	21 37 48.91	S. 9 41 58.7	N. 48 13	80 N. 8 N.
21	κ Aquarii -	5	11 51 52	22 30 46.22	S. 4 55 19.2	N. 34 37	73 N. 5 S.
22	κ Piscium -	4½	9 6 53	23 20 1.00	N. 0 31 2.8	S. 22 9	16 N. 58 S.
22	λ Piscium -	5	15 44 1	23 35 9.75	1 2 15.6	N. 30 10	68 N. 9 S.
23	δ Piscium -	4½	21 6 26	0 41 40.75	N. 6 50 56.7	N. 36 9	78 N. 1 S.
27	ε Tauri -	3½	22 12 55	4 20 42.92	N. 18 52 32.4	N. 44 6	90 N. 24 N.
29	ζ Tauri -	3½	4 55 42	5 29 33.16	21 3 18.0	S. 52 30	21 S. 69 S.
29	χ ¹ Orionis -	4½	12 31 27	5 46 21.66	20 14 45.8	S. 10 50	25 N. 28 S.
29	χ ² Orionis -	5	16 38 58	5 55 26.44	19 41 13.7	N. 16 31	55 N. 2 S.
29	χ ³ Orionis -	5	16 50 51	5 55 52.55	N. 20 8 11.3	S. 10 47	25 N. 29 S.
30	ν Geminor.	4½	4 19 10	6 20 55.07	N. 20 17 34.3	S. 46 27	14 S. 70 S.
Aug. 5	ρ ² Leonis -	5	4 58 30	11 6 49.80	N. 0 39 58.6	N. 30 13	73 N. 5 S.
5	ν Leonis -	4½	17 30 18	11 30 0.82	S. 0 4 35.4	S. 52 28	20 S. 90 S.
7	χ Virginis -	5	2 48 36	12 32 16.04	7 14 58.7	N. 44 35	83 N. 10 N.
7	ψ Virginis -	5	10 42 58	12 47 19.12	S. 8 48 11.1	N. 61 28	81 N. 32 N.
8	α Virginis -	1	2 36 36	13 18 4.11	S. 10 27 13.5	N. 12 32	46 N. 23 S.
9	α ² Libræ - -	2½	20 29 38	14 43 24.38	15 28 36.6	S. 22 20	6 N. 61 S.
10	γ ¹ Libræ -	5	3 48 29	14 59 5.69	15 43 45.0	S. 54 56	31 S. 90 S.
10	JUPITER -	-	7 8 6	15 6 18.95	16 36 36.2	S. 22 27	4 N. 62 S.
10	κ Libræ -	5	19 44 22	15 34 10.27	S. 19 14 12.7	N. 66 13	71 N. 41 N.
11	β ² Scorpii -	2	6 4 11	15 57 35.37	S. 19 25 52.8	N. 32 5	57 N. 4 S.
11	ν Scorpii -	4	8 55 28	16 4 9.21	19 6 18.0	N. 1 41	23 N. 34 S.
11	ψ Ophiuchi	5	14 7 22	16 16 12.43	19 42 59.8	N. 20 50	41 N. 15 S.
12	ξ Ophiuchi	5	13 54 42	17 12 55.21	20 57 45.9	N. 53 50	69 N. 20 N.

ELEMENTS OF OCCULTATIONS, 1864.

Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ☉ in R. A. of (and *.		At Greenwich Mean Time of δ			Limiting Parallels.
				Apparent R. A. of (and *.	Apparent Declination of *.	Diff. of Apparent Dec. of (and *.	
		h m s	h m s	° ' "	° ' "	Latitude.	
16 Sagittarii	6	11 54 7	18 7 11.75	S. 20 25 22.9	N. 44 49	70 N. 8 N.	
21 Sagittarii	5	15 56 50	18 17 19.10	20 36 30.8	N. 67 8	69 N. 38 N.	
d Sagittarii	5	12 45 9	19 9 44.76	19 11 14.7	N. 73 47	71 N. 49 N.	
ρ ¹ Sagittarii	4	14 22 34	19 13 51.07	18 5 44.6	N. 17 50	41 N. 19 S.	
e ³ Sagittarii	5	22 39 56	19 34 48.45	S. 16 26 4.0	S. 27 48	1 N. 66 S.	
β Capricor.	3	13 59 15	20 13 26.22	S. 15 12 8.8	N. 20 8	48 N. 17 S.	
ν Aquarii -	4½	9 31 53	21 2 15.03	11 54 49.2	N. 14 49	45 N. 23 S.	
ξ Aquarii -	4½	21 0 32	21 30 34.69	8 27 19.2	S. 64 16	28 S. 90 S.	
κ Aquarii -	5	21 47 19	22 30 46.67	S. 4 55 16.1	N. 27 44	63 N. 11 S.	
κ Piscium -	4½	18 26 34	23 20 1.55	N. 0 31 6.9	S. 32 4	7 N. 70 S.	
λ Piscium -	5	0 51 17	23 35 10.33	N. 1 2 19.9	N. 19 24	55 N. 18 S.	
δ Piscium -	4½	5 15 8	0 41 41.46	6 51 1.5	N. 22 25	59 N. 14 S.	
ε Piscium -	4	11 22 32	0 55 56.96	7 9 46.8	N. 74 24	90 N. 46 N.	
MARS -	-	13 53 22	3 48 24.16	18 22 58.2	N. 8 8	44 N. 14 S.	
ε Tauri -	3½	4 0 53	4 20 43.79	N. 18 52 34.8	N. 29 28	72 N. 9 N.	
ζ Tauri -	3½	10 33 1	5 29 33.94	N. 21 3 19.1	S. 65 21	43 S. 69 S.	
χ ¹ Orionis -	4½	18 8 21	5 46 22.41	20 14 46.6	S. 23 8	12 N. 42 S.	
χ ² Orionis -	5	22 15 56	5 55 27.17	19 41 14.5	N. 4 32	41 N. 13 S.	
χ ⁴ Orionis -	5	22 27 50	5 55 53.28	20 8 12.0	S. 22 45	13 N. 43 S.	
ν Geminor.	4½	9 57 22	6 20 55.77	N. 20 17 34.6	S. 57 29	29 S. 70 S.	
λ Geminor.	3½	9 8 57	7 10 18.82	N. 16 46 49.3	N. 65 22	90 N. 52 N.	
68 Geminor.	5½	16 37 21	7 25 52.82	16 6 50.2	N. 67 25	90 N. 56 N.	
α Cancr.	4	11 1 6	8 51 4.56	12 22 44.0	N. 3 1	39 N. 28 S.	
κ Cancr.	5	15 48 51	9 0 24.51	N. 11 12 37.7	N. 33 54	81 N. 3 N.	
MERCURY	-	3 24 47	12 22 29.00	S. 5 53 50.7	N. 24 4	62 N. 11 S.	
χ Virginis -	5	8 34 52	12 32 15.85	S. 7 14 57.1	N. 54 54	83 N. 23 N.	
ψ Virginis -	5	16 28 59	12 47 18.90	8 48 9.4	N. 72 27	81 N. 62 N.	
α Virginis -	1	8 24 11	13 18 3.83	10 27 11.8	N. 24 45	60 N. 11 S.	
h Virginis -	5	12 22 38	13 25 50.51	9 27 56.9	S. 69 42	53 S. 90 S.	
λ Virginis -	4½	11 21 57	14 11 47.60	S. 12 44 44.3	S. 62 17	40 S. 90 S.	
α ¹ Libræ -	2½	2 39 52	14 43 23.97	S. 15 28 35.0	S. 8 1	19 N. 44 S.	
ν ¹ Libræ -	5	10 6 1	14 59 5.28	15 43 43.5	S. 40 26	14 S. 90 S.	
JUPITER	-	19 11 28	15 18 34.27	17 31 12.1	N. 14 35	40 N. 21 S.	
ζ ¹ Libræ -	4	20 8 46	15 20 38.22	16 14 28.1	S. 67 17	53 S. 90 S.	
β ¹ Scorp.	2	12 56 23	15 57 34.92	S. 19 25 51.7	N. 46 49	71 N. 13 N.	
ν Scorp.	4	15 52 12	16 4 8.76	S. 19 6 16.9	N. 16 24	38 N. 19 S.	
ψ Ophiuchi	5	21 12 42	16 16 11.98	19 42 58.9	N. 35 30	62 N. 0	
ξ Ophiuchi	5	21 44 27	17 12 54.77	20 57 45.5	N. 67 54	69 N. 44 N.	
ρ ¹ Sagittarii	4	23 52 36	19 13 50.77	18 5 44.9	N. 28 47	54 N. 8 S.	
e ¹ Sagittarii	5	8 25 47	19 34 48.19	S. 16 26 4.2	S. 17 40	9 N. 54 S.	
β Capricor.	3	0 11 23	20 13 26.02	S. 15 12 9.0	N. 28 32	57 N. 9 S.	
ν Aquarii -	4½	20 10 10	21 2 14.96	11 54 48.9	N. 20 40	52 N. 17 S.	
ξ Aquarii -	4½	7 49 28	21 30 34.68	8 27 18.4	S. 60 4	24 S. 90 S.	
e ¹ Capricor.	6	10 48 45	21 37 49.25	9 41 55.8	N. 48 41	80 N. 9 N.	
κ Aquarii -	5	8 45 52	22 30 46.80	S. 4 55 14.6	N. 28 8	64 N. 11 S.	

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ☉ in R. A. of (and #.		At Greenwich Mean Time of ☉			Limiting Parallels.
					Apparent R. A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.	
			h m s	h m s	° ' "	° ' "	° ' "	Latitude.
Sept. 15	κ Piscium -	4½	5 18 52	23 20 18.0	N. 0 31 9.2	S. 34 52	5 N. 74 S.	
15	λ Piscium -	5	11 39 7	23 35 10.61	1 2 22.3	N. 15 39	51 N. 22 S.	
16	60 Piscium -	6	14 59 12	0 40 25.89	6 0 19.1	N. 59 16	90 N. 22 N.	
16	62 Piscium -	6	15 21 10	0 41 18.36	6 33 53.4	N. 30 4	68 N. 7 S.	
16	δ Piscium -	4½	15 31 2	0 41 41.90	N. 6 51 4.6	N. 14 50	50 N. 21 S.	
16	ε Piscium -	4	21 29 20	0 55 57.44	N. 7 9 49.9	N. 66 6	90 N. 31 N.	
20	ε Tauri -	3½	11 30 50	4 20 44.58	18 52 36.9	N. 16 6	53 N. 4 S.	
22	χ ¹ Orionis -	4½	0 49 44	5 46 23.26	20 14 47.1	S. 36 9	1 S. 61 S.	
22	χ ² Orionis -	5	4 53 27	5 55 28.01	19 41 14.8	S. 8 23	27 N. 26 S.	
22	χ ³ Orionis -	5	5 5 11	5 55 54.13	N. 20 8 12.3	S. 35 40	1 S. 61 S.	
22	ν Geminor.	4½	16 25 27	6 20 56.57	N. 20 17 34.4	S. 70 3	58 S. 70 S.	
23	λ Geminor.	3½	15 24 43	7 10 19.55	16 46 48.5	N. 53 48	90 N. 33 N.	
25	60 Cancrī -	6	15 52 44	8 48 32.18	12 8 24.2	N. 19 23	58 N. 11 S.	
25	α Cancrī -	4	17 11 5	8 51 5.10	12 22 42.4	S. 5 18	30 N. 36 S.	
25	κ Cancrī -	5	21 59 5	9 0 25.03	N. 11 12 36.2	N. 25 59	67 N. 5 S.	
27	π Leonis -	5	1 32 58	9 53 3.47	N. 8 41 29.0	S. 64 30	39 S. 81 S.	
28	p ¹ Leonis -	5	17 2 8	11 6 50.02	N. 0 39 58.8	N. 34 4	80 N. 1 S.	
Oct. 2	λ Virginis -	4½	16 55 32	14 11 47.38	S. 12 44 43.2	S. 55 32	30 S. 90 S.	
3	α ¹ Libræ -	2½	8 9 52	14 43 23.69	15 28 33.7	S. 0 20	27 N. 36 S.	
3	ν ¹ Libræ -	5	15 35 15	14 59 4.96	S. 15 43 42.2	S. 32 21	6 S. 77 S.	
4	ζ ¹ Libræ -	4	1 38 13	15 20 37.85	S. 16 14 26.9	S. 58 43	38 S. 90 S.	
4	JUPITER -	-	9 15 17	15 37 11.98	18 43 16.8	N. 52 22	71 N. 20 N.	
4	β ¹ Scorpī -	2	18 30 1	15 57 34.51	19 25 50.3	N. 56 2	71 N. 25 N.	
4	ν Scorpī -	4	21 27 6	16 4 8.34	19 6 15.7	N. 25 43	49 N. 10 S.	
5	ψ Ophiuchi	5	2 50 22	16 16 11.52	S. 19 42 57.7	N. 44 59	70 N. 11 N.	
8	ρ ¹ Sagittarii	4	7 10 59	19 13 50.28	S. 18 5 45.4	N. 38 24	68 N. 2 N.	
8	ρ ² Sagittarii	5½	7 14 22	19 13 58.30	18 33 11.1	N. 66 8	71 N. 37 N.	
8	ε ¹ Sagittarii	5	16 1 55	19 34 47.73	16 26 4.7	S. 8 18	18 N. 44 S.	
9	β Capricor.	3	8 21 44	20 13 25.61	15 12 9.8	N. 37 16	69 N. 0	
10	ν Aquarii -	4½	5 4 32	21 2 14.61	S. 11 54 49.7	N. 28 15	61 N. 10 S.	
10	ξ Aquarii -	4½	17 8 29	21 30 34.40	S. 8 27 18.9	S. 53 19	17 S. 90 S.	
11	κ Aquarii -	5	18 51 15	22 30 46.65	S. 4 55 14.8	N. 32 46	70 N. 6 S.	
12	κ Piscium -	4½	15 52 34	23 20 1.77	N. 0 31 9.8	S. 32 13	7 N. 70 S.	
12	λ Piscium -	5	22 19 19	23 35 10.62	1 2 22.9	N. 17 41	53 N. 20 S.	
14	δ Piscium -	4½	2 26 3	0 41 42.08	N. 6 51 6.1	N. 14 10	49 N. 21 S.	
14	ε Piscium -	4	8 24 34	0 55 57.66	N. 7 9 51.4	N. 64 53	90 N. 30 N.	
17	ε Tauri -	3½	20 59 29	4 20 45.29	18 52 38.0	N. 9 32	45 N. 11 S.	
19	χ ¹ Orionis -	4½	9 19 7	5 46 24.07	20 14 46.9	S. 43 30	9 S. 70 S.	
19	χ ² Orionis -	5	13 16 46	5 55 28.82	19 41 14.4	S. 15 46	20 N. 34 S.	
19	χ ³ Orionis -	5	13 28 12	5 55 54.95	N. 20 8 11.9	S. 43 3	9 S. 70 S.	
20	λ Geminor.	3½	23 3 30	7 10 20.36	N. 16 46 46.8	N. 46 25	90 N. 23 N.	
22	A ¹ Cancrī -	6	18 22 18	8 39 31.68	12 36 8.2	N. 20 51	59 N. 9 S.	
23	α Cancrī -	4	0 14 29	8 51 5.86	12 22 39.3	S. 11 44	24 N. 43 S.	
23	κ Cancrī -	5	5 0 51	9 0 25.77	11 12 33.2	N. 19 41	58 N. 12 S.	
23	ω Leonis -	6	15 45 50	9 21 13.23	N. 9 38 32.0	N. 22 56	62 N. 9 S.	

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♄ in R. A. of ♄ and ♀.	At Greenwich Mean Time of ♄			Limiting Parallels.
				Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
			h m s	h m s	° ' "	° ' "	Latitude.
Oct. 24	♄ Leonis -	5	8 29 55	9 53 4 11	N. 8 41 25 7	S. 69 52	52 S. 81 S.
25	p ¹ Leonis -	5	23 59 9	11 6 50 52	N. 0 39 56 3	N. 30 21	73 N. 5 S.
26	ν Leonis -	4½	12 25 19	11 30 1 36	S. 0 4 37 5	S. 49 6	16 S. 90 S.
27	χ Virginis -	5	21 21 37	12 32 16 15	7 14 57 6	N. 56 0	83 N. 25 N.
Nov. 1	β ¹ Scorpii -	2	0 18 57	15 57 34 31	S. 19 25 49 5	N. 57 52	71 N. 28 N.
1	ν Scorpii -	4	3 13 52	16 4 8 13	S. 19 6 14 9	N. 27 36	51 N. 8 S.
1	ψ Ophiuchi -	5	8 33 19	16 16 11 30	19 42 56 8	N. 46 58	70 N. 13 N.
4	ρ ¹ Sagittarii -	4	12 43 52	19 13 49 82	18 5 45 8	N. 41 2	71 N. 5 N.
4	ν Sagittarii -	4½	12 47 52	19 13 59 17	16 12 12 7	S. 72 9	59 S. 90 S.
4	ε ¹ Sagittarii -	5	21 41 25	19 34 47 27	S. 16 26 5 3	S. 5 42	20 N. 41 S.
5	β Capricor. -	3	14 18 22	20 13 25 15	S. 15 12 10 7	N. 39 46	73 N. 3 N.
6	ν Aquarii -	4½	11 31 26	21 2 14 18	11 54 51 0	N. 30 32	64 N. 7 S.
6	ξ Aquarii -	4½	23 56 48	21 30 34 00	8 27 20 1	S. 51 12	16 S. 90 S.
8	κ Aquarii -	5	2 31 22	22 30 46 31	S. 4 55 16 1	N. 34 28	73 N. 4 S.
9	κ Piscium -	4½	0 17 14	23 20 1 53	N. 0 31 8 9	S. 30 55	7 N. 69 S.
9	λ Piscium -	5	6 57 19	23 35 10 41	N. 1 2 22 1	N. 18 52	54 N. 18 S.
10	60 Piscium -	6	11 23 44	0 40 26 01	6 0 20 2	N. 59 21	90 N. 23 N.
10	62 Piscium -	6	11 46 22	0 41 18 49	6 33 54 6	N. 30 6	68 N. 7 S.
10	δ Piscium -	4½	11 56 31	0 41 42 03	6 51 6 0	N. 14 51	50 N. 20 S.
10	ε Piscium -	4	18 4 26	0 55 57 64	N. 7 9 51 3	N. 65 29	90 N. 32 N.
12	α Arietis -	6	15 32 17	2 44 4 18	N. 14 31 27 2	N. 58 49	90 N. 31 N.
14	α Tauri -	3½	7 17 29	4 20 45 84	18 52 38 3	N. 9 39	45 N. 11 S.
14	B. A. C. 1468	6	14 34 38	4 38 25 42	18 29 11 5	N. 51 33	90 N. 32 N.
14	ι Tauri -	5½	16 40 49	4 43 30 37	18 36 21 6	N. 48 30	90 N. 29 N.
15	χ ¹ Orionis -	4½	19 4 42	5 46 24 79	N. 20 14 46 1	S. 43 9	8 S. 70 S.
15	χ ² Orionis -	5	22 57 49	5 55 29 56	N. 19 41 13 4	S. 15 23	20 N. 33 S.
15	χ ³ Orionis -	5	23 9 2	5 55 55 68	20 8 11 0	S. 42 40	8 S. 70 S.
16	26 Geminor. -	5½	15 58 37	6 34 33 93	17 46 20 3	N. 55 17	90 N. 36 N.
17	λ Geminor. -	3½	8 3 6	7 10 21 21	16 46 44 2	N. 47 11	90 N. 24 N.
17	68 Geminor. -	5½	15 12 40	7 25 55 19	N. 16 6 44 5	N. 49 48	90 N. 26 N.
19	α Cancri -	4	8 22 22	8 51 6 70	N. 12 22 35 3	S. 10 23	25 N. 41 S.
19	κ Cancri -	5	13 5 9	9 0 26 61	11 12 29 1	N. 21 6	60 N. 10 S.
20	π Leonis -	5	16 19 39	9 53 4 91	8 41 21 2	S. 68 11	47 S. 81 S.
21	36 Sextantis -	6	16 20 48	10 38 12 08	3 11 48 3	N. 32 6	76 N. 3 S.
22	p ¹ Leonis -	5	7 45 17	11 6 51 25	N. 0 39 51 9	N. 32 12	76 N. 3 S.
22	ν Leonis -	4½	20 13 25	11 30 2 06	S. 0 4 41 7	S. 47 16	14 S. 90 S.
24	χ Virginis -	5	5 17 20	12 32 16 78	7 15 1 0	N. 57 33	83 N. 27 N.
25	α Virginis -	1	4 50 37	13 18 4 45	10 27 13 9	N. 30 6	67 N. 5 S.
25	λ Virginis -	5	8 45 30	13 25 51 07	9 27 59 4	S. 63 56	40 S. 90 S.
26	λ Virginis -	4½	7 19 45	14 11 47 86	S. 12 44 45 1	S. 54 33	28 S. 90 S.
26	α ¹ Libræ -	2½	22 17 40	14 43 24 01	S. 15 28 34 4	N. 0 44	28 N. 35 S.
Dec. 1	ρ ¹ Sagittarii -	4	18 33 29	19 13 49 57	18 5 46 2	N. 36 42	65 N. 0
2	ε ¹ Sagittarii -	5	3 22 0	19 34 46 98	16 26 6 0	S. 10 22	16 N. 46 S.
2	β Capricor. -	3	19 45 32	20 13 24 82	15 12 11 6	N. 34 31	66 N. 3 S.
3	ν Aquarii -	4½	16 49 37	21 2 13 82	S. 11 54 52 3	N. 24 41	57 N. 12 S.

ELEMENTS OF OCCULTATIONS, 1864. 447

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of	At Greenwich Mean Time of ♄			Limiting Parallels.
			Apparent ♂ in R. A. of ♄ and ♀.	Apparent R. A. of ♄ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ♄ and ♀.	
			h m s	h m s	° ' "	° ' "	Latitude.
Dec. 4	ξ Aquarii -	4½	5 14 44	21 30 33.62	S. 8 27 21.7	S. 57 19	23 S. 90 S.
4	♄ Capricor.	6	8 26 31	21 37 48.21	9 41 59.4	N. 51 6	80 N. 13 N.
5	κ Aquarii -	5	8 2 14	22 30 45.96	S. 4 55 17.8	N. 28 3	65 N. 10 S.
6	κ Piscium -	4½	6 11 52	23 20 1.22	N. 0 31 7.3	S. 37 11	1 N. 79 S.
6	λ Piscium -	5	13 1 18	23 35 10.10	N. 1 22 0.5	N. 12 42	48 N. 24 S.
7	δ Piscium -	4½	18 49 9	0 41 41.81	N. 6 51 4.8	N. 9 35	45 N. 25 S.
8	ε Piscium -	4	1 8 27	0 55 57.45	7 9 50.1	N. 60 29	90 N. 26 N.
11	ε Tauri -	3½	16 31 54	4 20 46.13	18 52 38.2	N. 10 7	46 N. 10 S.
13	χ¹ Orionis -	4½	4 33 16	5 46 25.32	20 14 45.3	S. 40 2	5 S. 67 S.
13	χ² Orionis -	5	8 26 14	5 55 30.12	N. 19 41 12.4	S. 11 59	23 N. 30 S.
13	χ³ Orionis -	5	8 37 26	5 55 56.24	N. 20 8 10.0	S. 39 15	4 S. 66 S.
14	λ Geminor.	3½	17 19 26	7 10 21.89	16 46 41.8	N. 52 55	90 N. 31 N.
16	A¹ Cancri -	6	11 19 6	8 39 33.36	12 36 0.2	N. 30 27	73 N. 0
16	60 Cancri -	6	15 45 57	8 48 34.59	12 8 13.0	N. 22 47	62 N. 8 S.
16	α Cancri -	4	17 1 45	8 51 7.52	N. 12 22 31.2	S. 1 46	34 N. 32 S.
16	κ Cancri -	5	21 40 49	9 0 27.43	N. 11 12 24.7	N. 29 56	72 N. 1 S.
18	π Leonis -	5	0 36 48	9 53 5.79	8 41 16.1	S. 58 15	28 S. 81 S.
19	p¹ Leonis -	5	15 50 58	11 6 52.11	N. 0 39 46.4	N. 42 55	90 N. 9 N.
20	ν Leonis -	4½	4 20 11	11 30 2.94	S. 0 4 47.4	S. 36 32	2 S. 85 S.
21	χ Virginis -	5	13 37 3	12 32 17.61	S. 7 15 6.0	N. 67 45	83 N. 45 N.
21	28 Virginis -	6	15 2 27	12 34 59.51	S. 6 45 23.6	N. 24 28	62 N. 11 S.
22	α Virginis -	1	13 25 44	13 18 5.25	10 27 18.4	N. 39 23	79 N. 4 N.
22	β Virginis -	5	17 23 24	13 25 51.85	9 28 3.8	S. 54 51	26 S. 90 S.
23	λ Virginis -	4½	16 13 19	14 11 48.58	12 44 48.7	S. 46 47	18 S. 90 S.
24	α¹ Libræ -	2½	7 20 2	14 43 24.71	S. 15 28 37.4	N. 7 24	35 N. 28 S.
24	γ¹ Libræ -	5	14 39 20	14 59 5.87	S. 15 43 45.5	S. 25 11	2 N. 65 S.
25	γ² Libræ -	4	0 31 35	15 20 38.63	16 14 29.6	S. 52 25	29 S. 90 S.
25	β² Scorpī -	2	16 59 0	15 57 35.02	19 25 51.1	N. 60 39	71 N. 31 N.
25	ν Scorpī -	4	19 51 3	16 4 8.80	19 6 16.5	N. 30 1	54 N. 6 S.
26	ψ Ophiuchi	5	1 4 36	16 16 11.94	S. 19 42 58.1	N. 48 41	70 N. 15 N.
30	β Capricor.	3	3 3 10	20 13 24.74	S. 15 12 12.3	N. 26 51	55 N. 10 S.
30	γ Aquarii -	4½	23 29 48	21 2 13.65	11 54 53.4	N. 14 56	46 N. 22 S.
31	ξ Aquarii -	4½	11 33 51	21 30 33.41	S. 8 27 23.2	S. 68 9	37 S. 90 S.

OCCULTATIONS OF PLANETS AND FIXED STARS BY THE MOON, VISIBLE AT GREENWICH.

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Month and Day.	Star's Name.	Magnitude.	Disappearance.				Reappearance.			
			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle from	
					N. Point.	Ver- tex.			N. Point.	Ver- tex.
			h m	h m	°	°	h m	h m	°	°
Jan. 2	ι Virginis - -	5	11 28	16 40	144	125	11 42	16 54	165	149
5	B.A.C. 5395 - -	6	11 59 ⁸	16 59	79	45	13 4	18 4	256	229
13	16 Piscium - -	6	0 16†	4 46	208	218				
15	π Piscium - -	6	7 47	12 8	54	93	8 23	12 44	332	10
18	α Tauri - -	6	4 44†	8 54	7	19				
19	ι Tauri - -	5½	7 56	12 2	25	62	8 32	12 38	326	6
20	χ¹ Orionis - -	4½	3 55	7 57	67	39	5 11	9 13	291	280
20	χ² Orionis - -	5	9 50	13 51	99	139	10 52	14 53	240	281
20	χ³ Orionis - -	5	10 16†	14 18	350	31				
20	68 Orionis - -	6	13 42	17 42	101	135	14 30†	18 30	243	274
24	κ Cancri - -	5	2 43	6 30	34	355	3 28	7 15	298	259
24	ω Leonis - -	6	16 9†	19 53	161	198				
25	14 Sextantis - -	6	11 34	15 15	82	101	12 46	16 27	224	253
26	B.A.C. 3726 - -	6	12 30	16 7	20	39	13 27	17 4	285	313
26	55 Leonis - -	6	14 37	18 14	56	90	15 42	19 19	257	294
Feb. 16	χ² Orionis - -	6	13 26	15 40	61	96	14 13	16 28	285	315
20	60 Cancri - -	6	4 32	6 32	43	5	5 34	7 34	285	250
20	κ Cancri - -	5	12 36	14 35	96	132	13 35	15 33	218	257
25	ψ Virginis - -	5	11 43†	13 22	153	142				
29	ω Ophiuchi - -	5	16 56	18 19	68	73	18 10	19 33	285	301
Mar. 1	B.A.C. 5866 - -	6	13 50	15 10	130	100	14 40	15 59	220	197
2	21 Sagittarii - -	5	14 31	15 46	149	117	15 6	16 21	213	185
3	B.A.C. 6658 - -	6	15 39	16 51	136	105	16 33	17 44	241	216
15	71 Orionis - -	5½	7 11†	7 36	352	9				
18	Α Cancri - -	6	6 45	6 58	115	90	7 44	7 57	206	193
18	Α Cancri - -	6	9 31	9 44	67	79	10 51	11 4	246	274
19	ω Leonis - -	6	6 1	6 11	73	39	7 18	7 28	246	220
21	ρ Leonis - -	6	10 18†	10 20	332	324				
24	ι Virginis - -	5	11 58†	11 47	335	321				
24	B.A.C. 4531 - -	6	16 29	16 18	50	77	17 35	17 24	276	310
27	α Scorpii - -	4½	12 25	12 3	51	20	13 28	13 5	283	260
27	α Scorpii - -	4½	13 20†	12 57	347	323				
28	B.A.C. 5758 - -	6	13 45	13 18	48	20	14 43	14 16	298	277
Apr. 11	χ² Orionis - -	6	7 49	6 28	103	132	8 59	7 38	241	279
11	χ³ Orionis - -	5	12 35†	11 13	171	209				
16	14 Sextantis - -	6	13 55†	12 14	156	192				
17	B.A.C. 3726 - -	6	13 59	12 13	45	77	15 5	13 19	266	302
17	55 Leonis - -	6	16 1	14 15	66	104	17 1*	15 15	252	291
20	γ Virginis - -	6	10 36	8 40	89	66	11 45	9 48	219	206
22	B.A.C. 4896 - -	6	11 28	9 23	44	15	12 30	10 25	277	257

OCCULTATIONS OF PLANETS AND FIXED STARS BY THE MOON,
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Month and Day.	Star's Name.	Magnitude	Disappearance.				Reappearance.			
			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle from	
					N. Point.	Ver- tex.			N. Point.	Ver- tex.
Apr. 23	λ Libræ - - -	6	h m	h m	°	°	h m	h m	°	°
29	c ¹ Capricorni -	6	15 1	12 51	94	86	16 17	14 7	245	250
30	κ Aquarii - -	5	18 48	16 15	84	58	19 51	17 18	320	302
May 18	B.A.C. 4531 -	5	10 8	15 31	124	89	19 10	16 33	280	250
22	B.A.C. 5866 -	6	10 30†	6 43	336	309				
23	21 Sagittarii -	5	13 35	9 32	57	26	14 35	10 32	292	268
24	B.A.C. 6658 -	6	13 3†	9 46	68	34	14 52	10 45	293	263
June 8	A ¹ Cancrī - -	6	15 28	11 16	66	34	16 25	12 13	310	284
11	p ¹ Leonis - -	6	15 39†	10 29	162	109				
14	i Virginis - -	5	16 0	10 38	51	89	16 59*	11 37	267	306
17	ω ¹ Scorpii - -	4½	19 11†	13 37	346	25				
17	ω ² Scorpii - -	4½	18 13	12 27	66	87	19 20	13 34	287	316
18	B.A.C. 5758 -	6	19 6†	13 20	357	25				
19	B.A.C. 6098 -	6	18 13	12 23	53	65	19 11	13 21	310	330
19	μ ¹ Sagittarii -	4	16 13†	10 19	181	165				
19	μ ² Sagittarii -	4	21 49†	15 54	11	42				
19	15 Sagittarii -	5	22 5	16 10	73	106	22 59†	17 4	309	346
20	d Sagittarii -	5	23 5†	17 6	16	49				
26	62 Piscium - -	6	19 44	13 23	76	38	20 33	14 11	329	293
26	δ Piscium - -	4½	20 2	13 40	127	89	21 1	14 40	279	244
30	B.A.C. 1361 -	6	20 23†	13 46	62	28	21 3	14 26	316	280
30	ε Tauri - - -	3½	21 51	15 14	64	26	22 36	15 59	316	276
July 14	41 Libræ - - -	6	21 5†	10 43	173	198				
14	κ Libræ - - -	5	18 15†	10 43	87	119	20 27†	12 55	264	301
20	c ¹ Capricorni -	6	19 22	11 49	132	125	22 7	14 10	277	282
21	κ Aquarii - -	5	20 59	13 3	202	173				
22	λ Piscium - -	5	19 13†	11 13	170	173	0 30	16 26	244	255
29	χ ² Orionis - -	5	23 47	15 43	183	143				
Aug. 11	β ² Scorpii - -	2	0 5†	15 33	169	160				
13	16 Sagittarii -	6	15 4†	5 42	106	138	22 53†	13 22	275	311
13	15 Sagittarii -	5	21 51	12 20	10	44				
20	ε Piscium - -	4	22 14†	12 44	22	344				
Sept. 13	c ¹ Capricorni -	6	20 8†	10 10	118	123	23 14	11 41	291	307
16	60 Piscium - -	6	22 4	10 32	22	50				
16	62 Piscium - -	6	3 15†	15 30	126	156	4 29	16 44	276	311
23	λ Geminorum -	3½	3 26	15 41	355	315				
25	60 Cancrī - -	6	2 35†	14 22	93	3	16	14 55	205	165
Oct. 8	ρ ¹ Sagittarii -	5½	2 39	14 19	40	52	20 19	7 48	350	7
8	ρ ² Sagittarii -	4	20 27	7 17	156	169	21 59	8 8	234	253
9	β Capricorni -	3	20 32	7 21	152	167	22 43	9 28	248	271
14	ε Piscium - -	4	21 50	8 35	78	40	21 23	7 48	327	294

OCCULTATIONS OF PLANETS AND FIXED STARS BY THE MOON, VISIBLE AT GREENWICH.

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Month and Day.	Star's Name.	Magnitude.	Disappearance.				Reappearance.			
			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle from	
					N. Point.	Ver- tex.			N. Point.	Ver- tex.
Oct. 22	A ^r Cancrī - -	6	h m 7 48	h m 17 40	° 122	° 109	h m 8 39	h m 18 31	° 197	° 197
23	♌ Leonis - -	6	4 16	14 5	101	62	5 16	15 5	227	190
Nov. 10	♊ Piscium - -	6	3 13†	11 52	22	50				
10	♊ Piscium - -	6	3 28	12 6	124	154	4 32	13 10	277	318
12	♈ Arietis - -	6	7 59†	16 29	9	49				
14	B.A.C. 1468 -	6	6 44†	15 6	1	30				
14	♉ Tauri - -	5½	8 58	17 20	41	81	9 40	18 2	315	356
16	♊ Geminorum	5½	8 20†	16 34	349	14				
17	♊ Geminorum	5½	7 2†	15 12	347	340				
19	♋ Cancrī - -	5	3 24	11 27	116	77	4 13	12 16	217	178
21	♋ Sextantis -	6	6 57	14 51	68	34	8 11	16 5	246	220
Dec. 4	♏ Capricorni -	6	2 0	9 4	53	88	2 30	9 34	351	81
5	♋ Aquarii - -	5	1 35	8 35	148	177	2 28	9 29	260	294
14	♊ Geminorum	3½	11 38	18 2	41	81	12 29	18 52	290	331
16	A ^r Cancrī - -	6	3 24	9 41	80	40	4 29	10 46	256	218
16	♋ Cancrī - -	6	9 15	15 31	131	138	9 51	16 7	181	199
19	♌ Leonis - -	5	8 44	14 48	39	14	9 56	16 0	268	255
21	♍ Virginis - -	6	7 23	13 20	99	61	8 19	14 16	216	181
25	♏ Scorpīi - -	4	13 23†	19 3	167	143				

§ Rising.

† A near approach.

‡ Below the horizon.

* Setting.

MEAN TIME.

JANUARY.

d h m s				d h m s				d h m s				
I. Ec. D.	1	3	39	34.0	I. Sh. I.	9	2	46	II. Sh. E.	16	6	26
I. Oc. R.			6 46		II. Tr. I.			3 31	I. Sh. E.			6 51
II. Sh. I.			22 52		I. Tr. I.			3 48	I. Tr. E.			7 57
II. Tr. I.	2	0	46		II. Sh. E.			3 50	II. Tr. E.			8 35
I. Sh. I.			0 53		I. Sh. E.			4 58	I. Ec. D.	17	1	55
II. Sh. E.			1 14		II. Tr. E.			5 51	I. Oc. R.			5 11
I. Tr. I.			1 51		I. Tr. E.			6 0	III. Sh. I.			22 9
I. Sh. E.			3 5		I. Ec. D.	10	0	1 38.2	II. Ec. D.			22 48
II. Tr. E.			3 7		I. Oc. R.			3 14	I. Sh. I.			23 8
I. Tr. E.			4 3		III. Sh. I. *			18 11	I. Tr. I.	18	0	15
I. Ec. D.			22 8	2.1	II. Ec. D.	20	15	15.9	III. Sh. E.			0 18
I. Oc. R.	3	1	16		III. Sh. E.			20 20	I. Sh. E.			1 20
III. Sh. I.			14 13		I. Sh. I.			21 15	I. Tr. E.			2 26
III. Sh. E.	↑		16 23		I. Tr. I.			22 18	III. Tr. I.			2 43
II. Ec. D. *			17 42	14.6	III. Tr. I.			22 28	II. Oc. R.			3 18
III. Tr. I. *			18 11		I. Sh. E.			23 27	III. Tr. E.			4 45
I. Sh. I.	↑		19 22		I. Tr. E.	11	0	30	I. Ec. D.			20 23
III. Tr. E.			20 18		III. Tr. E.			0 32	I. Oc. R.			23 41
I. Tr. I.			20 20		II. Oc. R.			0 37	II. Sh. I. *	19	17	22
I. Sh. E.			21 34		I. Ec. D. *			18 29	I. Sh. I. *			17 36
II. Oc. R.			21 56		I. Oc. R.			21 43	I. Tr. I. *			18 44
I. Tr. E.			22 32		II. Sh. I.	12	14	46	II. Tr. I. †			19 36
I. Ec. D. †	4	16	36	24.1	I. Sh. I. †			15 43	II. Sh. E. †			19 43
I. Oc. R. †			19 45		I. Tr. I. *			16 47	I. Sh. E. †			19 48
II. Sh. I.	5	12	10		II. Tr. I. *			16 53	I. Tr. E.			20 55
I. Sh. I.			13 50		II. Sh. E. *			17 7	II. Tr. E.			21 56
II. Tr. I.			14 8		I. Sh. E. *			17 55	I. Ec. D.	20	14	51
II. Sh. E.			14 31		I. Tr. E. *			18 59	I. Oc. R. *			18 10
I. Tr. I.			14 50		II. Tr. E. †			19 13	I. Sh. I.	21	12	4
I. Sh. E. †			16 2		I. Ec. D.	13	12	58	II. Ec. D.			12 4
II. Tr. E. †			16 28		I. Oc. R. †			16 13	III. Ec. D.			12 19
I. Tr. E. *			17 2		III. Ec. D.	14	8	22	I. Tr. I.			13 13
I. Ec. D.	6	11	4	51.4	II. Ec. D.			9 31	III. Ec. R.	14	13	46.1
I. Oc. R.			14 15		I. Sh. I.			10 11	I. Sh. E.			14 16
III. Ec. D.	7	4	24	57.9	III. Ec. R.			10 16	I. Tr. E. †			15 24
III. Ec. R.			6 19	31.9	I. Tr. I.			11 16	II. Oc. R. *			16 37
II. Ec. D.			6 58	46.5	I. Sh. E.			12 23	III. Oc. D. *			16 54
I. Sh. I.			8 18		III. Oc. D.			12 41	III. Oc. R. *			18 55
III. Oc. D.			8 25		I. Tr. E.			13 28	I. Ec. D.	22	9	20
I. Tr. I.			9 19		II. Oc. R.			13 58	I. Oc. R.			12 39
I. Sh. E.			10 30		III. Oc. R.			14 44	I. Sh. I.	23	6	32
III. Oc. R.			10 31		I. Ec. D.	15	7	26	II. Sh. I.			6 40
II. Oc. R.			11 17		I. Oc. R.			10 42	I. Tr. I.			7 42
I. Tr. E.			11 31		II. Sh. I.	16	4	4	I. Sh. E.			8 44
I. Ec. D.	8	5	33	10.8	I. Sh. I.			4 39	II. Tr. I.			8 58
I. Oc. R.			8 45		I. Tr. I.			5 45	II. Sh. E.			9 2
II. Sh. I.	9	1	28		II. Tr. I.			6 15	I. Tr. E.			9 53

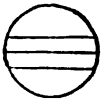



The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite. Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

JANUARY.

d	h	m	s	d	h	m	s	d	h	m	s
II. Tr. E.	23	11	17	II. Sh. I.	26	19	58	II. Oc. R. †	28	19	15
I. Ec. D.	24	3	48.42.6	I. Tr. I.	20	40		III. Oc. D.	21	4	
I. Oc. R.	7	8		I. Sh. E.	21	41		III. Oc. R.	23	2	
I. Sh. I.	25	1	1	II. Tr. I.	22	18		I. Ec. D.	29	11	13.46.3
II. Ec. D.	1	21	5.0	II. Sh. E.	22	19		I. Oc. R. †	14	35	
III. Sh. I.	2	6		I. Tr. E.	22	51		I. Sh. I.	30	8	25
I. Tr. I.	2	11		II. Tr. E.	27	0	37	II. Sh. I.	9	16	
I. Sh. E.	3	13		I. Ec. D. *	16	45	28.6	I. Tr. I.	9	37	
II. Ec. R.	3	36	1.9	I. Oc. R.	20	6		I. Sh. E.	10	37	
II. Oc. D.	3	37		I. Sh. I.	28	13	57	II. Sh. E.	11	38	
III. Sh. E.	4	15		II. Ec. D. †	14	37	30.4	II. Tr. I.	11	39	
I. Tr. E.	4	22		I. Tr. I. †	15	8		I. Tr. E.	11	49	
II. Oc. R.	5	56		I. Sh. E. *	16	9		II. Tr. E.	13	58	
III. Tr. I.	6	54		III. Ec. D. *	16	17	24.5	I. Ec. D.	31	5	42.11.8
III. Tr. E.	8	54		II. Ec. R. *	16	52	24.6	I. Oc. R.	9	4	
I. Ec. D.	22	17	2.7	II. Oc. D. *	16	57					
I. Oc. R.	26	1	37	I. Tr. E. *	17	20					
I. Sh. I. †	19	29		III. Ec. R. *	18	11	12.6				

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.	d *		III.	d * r *	
II.	d *		IV.	No Eclipse of this Satellite.	

FEBRUARY.

d	h	m	s	d	h	m	s	d	h	m	s
I. Sh. I.	1	2	53	I. Ec. D.	2	0	10.31.5	I. Sh. I. *	4	15	50
II. Ec. D.	3	53	56.1	I. Oc. R.	3	33		I. Tr. I. *	17	3	
I. Tr. I.	4	6		I. Sh. I.	21	22		II. Ec. D. *	17	10	20.7
I. Sh. E.	5	5		II. Sh. I.	22	33		I. Sh. E. *	18	2	
III. Sh. I.	6	3		I. Tr. I.	22	35		I. Tr. E. †	19	15	
II. Ec. R.	6	8	47.8	I. Sh. E.	23	34		II. Ec. R. †	19	25	10.2
II. Oc. D.	6	15		I. Tr. E.	3	0	46	II. Oc. D. †	19	34	
I. Tr. E.	6	17		II. Sh. E.	0	55		III. Ec. D.	20	15	1.9
III. Sh. E.	8	12		II. Tr. I.	0	59		II. Oc. R.	21	51	
II. Oc. R.	8	33		II. Tr. E.	3	17		III. Ec. R.	22	8	37.9
III. Tr. I.	11	2		I. Ec. D. *	18	38	57.1	III. Oc. D.	5	1	11
III. Tr. E.	12	59		I. Oc. R.	22	2		III. Oc. R.	3	7	

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

FEBRUARY.

d h m s				d h m s				d h m s			
I. Ec. D.	5	13	7 14.6	III. Oc. R.	12	7	7	III. Oc. D.	19	9	14
I. Oc. R.*		16	30	I. Ec. D.*	15	0	41.8	III. Oc. R.		11	4
I. Sh. I.	6	10	18	I. Oc. R.*		18	25	I. Ec. D.*		16	54 8.2
I. Tr. I.		11	32	I. Sh. I.	13	12	11	I. Oc. R.		20	18
II. Sh. I.		11	52	I. Tr. I.		13	26	I. Sh. I. †	20	14	4
I. Sh. E.		12	30	I. Sh. E. †		14	23	I. Tr. I. *		15	18
I. Tr. E.		13	43	II. Sh. I. †		14	28	I. Sh. E.*		16	16
II. Sh. E. †		14	13	I. Tr. E. *		15	37	II. Sh. I. *		17	3
II. Tr. I. †		14	19	II. Sh. E. *		16	49	I. Tr. E.*		17	30
II. Tr. E. *		16	36	II. Tr. I. *		16	57	II. Sh. E.		19	25
I. Ec. D.	7	7	35 39.6	II. Tr. E. †		19	14	II. Tr. I.		19	32
I. Oc. R.		10	59	I. Ec. D.	14	9	29 6.4	II. Tr. E.		21	49
I. Sh. I.	8	4	46	I. Oc. R.		12	53	I. Ec. D.	21	11	22 32.7
I. Tr. I.		6	0	I. Sh. I.	15	6	39	I. Oc. R. *		14	46
II. Ec. D.		6	26 46.5	I. Tr. I.		7	54	I. Sh. I.	22	8	32
I. Sh. E.		6	58	I. Sh. E.		8	51	I. Tr. I.		9	46
I. Tr. E.		8	12	II. Ec. D.		8	59 37.8	I. Sh. E.		10	44
II. Ec. R.		8	41 34.2	I. Tr. E.		10	5	II. Ec. D.		11	32 31.4
II. Oc. D.		8	51	II. Ec. R.		11	14 22.4	I. Tr. E.		11	58
III. Sh. I.		10	0	II. Oc. D.		11	26	II. Ec. R. †		13	47 13.7
II. Oc. R.		11	9	II. Oc. R. †		13	42	II. Oc. D. †		13	58
III. Sh. E.		12	9	III. Sh. I. †		13	57	II. Oc. R. *		16	14
III. Tr. I. *		15	6	III. Sh. E. *		16	5	III. Sh. I. *		17	54
III. Tr. E. *		17	1	III. Tr. I. †		19	7	III. Sh. E.		20	3
I. Ec. D.	9	2	3 59.1	III. Tr. E.		20	58	III. Tr. I.		23	3
I. Oc. R.		5	28	I. Ec. D.	16	3	57 25.8	III. Tr. E.		23	0 53
I. Sh. I.		23	14	I. Oc. R.		7	22	I. Ec. D.		5	50 52.0
I. Tr. I.	10	0	29	I. Sh. I.	17	1	7	I. Oc. R.		9	14
II. Sh. I.		1	9	I. Tr. I.		2	22	I. Sh. I.	24	3	0
I. Sh. E.		1	26	I. Sh. E.		3	19	I. Tr. I.		4	15
I. Tr. E.		2	40	II. Sh. I.		3	45	I. Sh. E.		5	12
II. Sh. E.		3	31	I. Tr. E.		4	33	II. Sh. I.		6	21
II. Tr. I.		3	37	II. Sh. E.		6	6	I. Tr. E.		6	26
II. Tr. E.		5	55	II. Tr. I.		6	14	II. Sh. E.		8	42
I. Ec. D.		20	32 24.4	II. Tr. E.		8	31	II. Tr. I.		8	49
I. Oc. R.		23	56	I. Ec. D.		22	25 51.0	II. Tr. E.		11	5
I. Sh. I. *	11	17	43	I. Oc. R.	18	1	50	I. Ec. D.	25	0	19 17.1
I. Tr. I. †		18	57	I. Sh. I.		19	35	I. Oc. R.		3	43
II. Ec. D.		19	43 11.1	I. Tr. I.		20	50	I. Sh. I.		21	28
I. Sh. E.		19	55	I. Sh. E.		21	47	I. Tr. I.		22	42
I. Tr. E.		21	8	II. Ec. D.		22	16 3.4	I. Sh. E.		23	40
II. Ec. R.		21	57 57.1	I. Tr. E.		23	2	II. Ec. D.	26	0	48 59.3
II. Oc. D.		22	9	II. Ec. R.	19	0	30 46.7	I. Tr. E.		0	53
III. Ec. D.	12	0	13 13.8	II. Oc. D.		0	42	II. Ec. R.		3	340.6
II. Oc. R.		0	26	II. Oc. R.		2	59	II. Oc. D.		3	14
III. Ec. R.		2	6 39.6	III. Ec. D.		4	10 48.8	II. Oc. R.		5	30
III. Oc. D.		5	14	III. Ec. R.		6	4 6.1	III. Ec. D.		8	8 25.7

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite. Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

FEBRUARY.

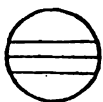
d h m s	d h m s	d h m s
III. Ec. R. 26 10 1 35 ⁸	I. Tr. E. 27 19 21	I. Tr. I. 29 11 38
III. Oc. D. † 13 8	II. Sh. I. 19 39	I. Sh. E. 12 37
III. Oc. R. * 14 57	II. Sh. E. 22 0	I. Tr. E. † 13 49
I. Ec. D. † 18 47 34 ⁵	II. Tr. I. 22 6	II. Ec. D. * 14 5 29 ⁶
I. Oc. R. 22 11	II. Tr. E. 28 0 22	II. Ec. R. * 16 20 10 ¹
I. Sh. I. * 27 15 56	I. Ec. D. † 13 15 58 ⁹	II. Oc. D. * 16 29
I. Tr. I. * 17 10	I. Oc. R. * 16 38	II. Oc. R. † 18 45
I. Sh. E. † 18 8	I. Sh. I. 29 10 25	III. Sh. I. 21 52

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.

d

*

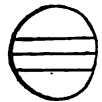


III.

d

r

*



II.

d

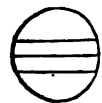
*

r

*



IV.

No Eclipse
of this Satellite.

MARCH.

d h m s	d h m s	d h m s
III. Sh. E. 1 0 0	II. Oc. R. 4 7 59	II. Ec. R. 7 18 53 ^{12 9}
III. Tr. I. 2 55	III. Ec. D. 12 5 39 ⁷	II. Oc. D. 18 57
III. Tr. E. 4 43	III. Ec. R. * 13 58 44 ³	II. Oc. R. 21 13
I. Ec. D. 7 44 18 ³	III. Oc. D. * 16 58	III. Sh. I. 8 1 50
I. Oc. R. 11 6	III. Oc. R. 18 44	III. Sh. E. 3 58
I. Sh. I. 2 4 53	I. Ec. D. 20 41 1 ³	III. Tr. I. 6 44
I. Tr. I. 6 6	I. Oc. R. 5 0 2	III. Tr. E. 8 29
I. Sh. E. 7 5	I. Sh. I. † 17 49	I. Ec. D. 9 37 45 ⁶
I. Tr. E. 8 17	I. Tr. I. 19 1	I. Oc. R. † 12 57
II. Sh. I. 8 57	I. Sh. E. 20 1	I. Sh. I. 9 6 46
II. Sh. E. 11 18	I. Tr. E. 21 12	I. Tr. I. 7 56
II. Tr. I. 11 22	II. Sh. I. 22 15	I. Sh. E. 8 58
II. Tr. E. † 13 38	II. Sh. E. 6 0 36	I. Tr. E. 10 7
I. Ec. D. 3 2 12 43 ⁷	II. Tr. I. 0 38	II. Sh. I. 11 32
I. Oc. R. 5 34	II. Tr. E. 2 53	II. Tr. I. * 13 52
I. Sh. I. 23 21	I. Ec. D. * 15 9 25 ⁸	II. Sh. E. * 13 53
I. Tr. I. 4 0 33	I. Oc. R. † 18 29	II. Tr. E. * 16 8
I. Sh. E. 1 33	I. Sh. I. † 7 12 18	I. Ec. D. 10 4 6 ^{11 2}
I. Tr. E. 2 44	I. Tr. I. * 13 28	I. Oc. R. 7 25
II. Ec. D. 3 22 0 ⁴	I. Sh. E. * 14 30	I. Sh. I. 11 1 14
II. Ec. R. 5 36 40 ²	I. Tr. E. * 15 39	I. Tr. I. 2 23
II. Oc. D. 5 43	II. Ec. D. * 16 38 33 ⁹	

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

MARCH.

d h m s				d h m s				d h m s			
I. Sh. E.	11	3	26	I. Sh. I.	18	3	7	I. Sh. I.	25	5	0
I. Tr. E.		4	34	I. Tr. I.		4	12	I. Tr. I.		6	0
II. Ec. D.		5	55 8.4	I. Sh. E.		5	19	I. Sh. E.		7	12
II. Ec. R.		8	9 46.9	I. Tr. E.		6	23	I. Tr. E.		8	11
II. Oc. D.		8	11	II. Ec. D.		8	28 24.4	II. Ec. D.	11	1	50.0
II. Oc. R.		10	26	II. Oc. R. *		12	51	II. Oc. R. *		15	13
III. Ec. D. *		16	2 54.5	III. Ec. D.		20	0 33.8	III. Ec. D.		23	58 13.5
III. Ec. R. †		17	55 55.3	III. Ec. R.		21	53 32.5	III. Ec. R.	26	1	51 12.0
III. Oc. D.		20	44	III. Oc. D.	19	0	25	I. Ec. D.		2	21 31.6
III. Oc. R.		22	28	I. Ec. D.		0	27 59.2	III. Oc. D.		4	2
I. Ec. D.		22	34 29.3	III. Oc. R.		2	7	I. Oc. R.		5	29
I. Oc. R.	12	1	52	I. Oc. R.		3	41	III. Oc. R.		5	42
I. Sh. I.		19	42	I. Sh. I.		21	35	I. Sh. I.		23	29
I. Tr. I.		20	50	I. Tr. I.		22	39	I. Tr. I.	27	0	27
I. Sh. E.		21	54	I. Sh. E.		23	47	I. Sh. E.		1	41
I. Tr. E.		23	1	I. Tr. E.	20	0	50	I. Tr. E.		2	38
II. Sh. I.	13	0	50	II. Sh. I.		3	26	II. Sh. I.		6	1
II. Tr. I.		3	7	II. Tr. I.		5	34	II. Tr. I.		7	58
II. Sh. E.		3	11	II. Sh. E.		5	47	II. Sh. E.		8	22
II. Tr. E.		5	22	II. Tr. E.		7	49	II. Tr. E.		10	13
I. Ec. D. *		17	2 54.2	I. Ec. D.		18	56 24.5	I. Ec. D.		20	49 57.4
I. Oc. R.		20	19	I. Oc. R.		22	8	I. Oc. R.		23	56
I. Sh. I. *	14	14	11	I. Sh. I. *	21	16	4	I. Sh. I.	28	17	57
I. Tr. I. *		15	18	I. Tr. I. *		17	6	I. Tr. I.		18	54
I. Sh. E. *		16	23	I. Sh. E.		18	16	I. Sh. E.		20	9
I. Tr. E. †		17	29	I. Tr. E.		19	17	I. Tr. E.		21	4
II. Ec. D.		19	11 45.1	II. Ec. D.		21	45 4.8	II. Ec. D.	29	0	18 34.9
II. Oc. R.		23	39	II. Oc. R.	22	2	2	II. Oc. R.		4	24
III. Sh. I.	15	5	47	III. Sh. I.		9	45	III. Sh. I. *		13	42
III. Sh. E.		7	55	III. Sh. E. †		11	53	I. Ec. D. *		15	18 18.9
III. Tr. I.		10	27	I. Ec. D. *		13	24 45.2	III. Sh. E. *		15	50
I. Ec. D.		11	31 14.3	III. Tr. I. *		14	6	III. Tr. I.		17	40
III. Tr. E. †		12	10	III. Tr. E. *		15	47	I. Oc. R.		18	23
I. Oc. R. *		14	47	I. Oc. R. *		16	35	III. Tr. E.		19	19
I. Sh. I.	16	8	39	I. Sh. I.	23	10	32	I. Sh. I. *	30	12	25
I. Tr. I.		9	45	I. Tr. I. †		11	33	I. Tr. I. *		13	20
I. Sh. E.		10	51	I. Sh. E. *		12	44	I. Sh. E. *		14	37
I. Tr. E. †		11	56	I. Tr. E. *		13	44	I. Tr. E. *		15	31
II. Sh. I. *		14	8	II. Sh. I. *		16	43	II. Sh. I.		19	18
II. Tr. I. *		16	20	II. Tr. I.		18	46	II. Tr. I.		21	9
II. Sh. E. *		16	29	II. Sh. E.		19	4	II. Sh. E.		21	39
II. Tr. E.		18	35	II. Tr. E.		21	1	II. Tr. E.		23	24
I. Ec. D.	17	5	59 40.4	I. Ec. D.	24	7	53 12.0	I. Ec. D.	31	9	46 46.4
I. Oc. R.		9	14	I. Oc. R.		11	2	I. Oc. R. *		12	50

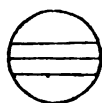
The abbreviations denote as follows — Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

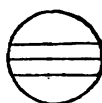
MARCH.

Phases of the Eclipses of the Satellites for an inverting Telescope.

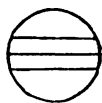
I.

d
*

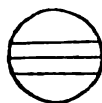
III.

d r
* *

II.

d
*

IV.

No Eclipse
of this Satellite.

APRIL.

d h m s				d h m s				d h m s			
I. Sh. I.	1	6	53	III. Sh. I.	5	17	39	I. Tr. I.	10	3	59
I. Tr. I.		7	47	III. Sh. E.		19	47	I. Sh. E.		5	27
I. Sh. E.		9	5	I. Oc. R.		20	10	I. Tr. E.		6	10
I. Tr. E.		9	58	III. Tr. I.		21	9	II. Sh. I. *		11	12
II. Ec. D. *	13	35	26.7	III. Tr. E.		22	48	II. Tr. I. *		12	41
II. Oc. R.		17	34	I. Sh. I. *	6	14	18	II. Sh. E. *		13	32
III. Ec. D.	2	3	56 32.3	I. Tr. I. *		15	6	II. Tr. E. *		14	55
I. Ec. D.		4	15 6.9	I. Sh. E. *		16	31	I. Ec. D.	11	0	37 13.2
III. Ec. R.		5	49 32.3	I. Tr. E. †		17	17	I. Oc. R.		3	29
I. Oc. R.		7	16	II. Sh. I.		21	54	I. Sh. I.		21	43
III. Oc. D.		7	34	II. Tr. I.		23	30	I. Tr. I.		22	26
III. Oc. R.		9	13	II. Sh. E.	7	0	14	I. Sh. E.		23	55
I. Sh. I.	3	1	22	II. Tr. E.		1	45	I. Tr. E.	12	0	36
I. Tr. I.		2	13	I. Ec. D. *	11	40	24.2	II. Ec. D.		5	26 11.2
I. Sh. E.		3	34	I. Oc. R. *		14	36	II. Oc. R.		9	3
I. Tr. E.		4	24	I. Sh. I.	8	8	47	I. Ec. D.		19	5 36.7
II. Sh. I.		8	36	I. Tr. I.		9	33	III. Sh. I.		21	37
II. Tr. I.		10	20	I. Sh. E. †		10	59	I. Oc. R.		21	56
II. Sh. E. †		10	57	I. Tr. E. *		11	44	III. Sh. E.		23	45
II. Tr. E. *		12	35	II. Ec. D. *	16	9	16.0	III. Tr. I.	13	0	34
I. Ec. D.		22	43 33.4	II. Oc. R.		19	54	III. Tr. E.		2	13
I. Oc. R.	4	1	43	I. Ec. D.	9	6	8 45.8	I. Sh. I. *		16	12
I. Sh. I.		19	50	III. Ec. D.		7	54 19.0	I. Tr. I. †		16	52
I. Tr. I.		20	40	I. Oc. R.		9	3	I. Sh. E.		18	24
I. Sh. E.		22	2	III. Ec. R.		9	47 21.9	I. Tr. E.		19	3
I. Tr. E.		22	51	III. Oc. D. †		11	1	II. Sh. I.	14	0	29
II. Ec. D.	5	2	52 16.6	III. Oc. R. *		12	40	II. Tr. I.		1	50
II. Oc. R.		6	44	I. Sh. I.	10	3	15	II. Sh. E.		2	50
I. Ec. D. †		17	11 55.8					II. Tr. E.		4	4

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

APRIL.

d h m s				d h m s				d h m s			
I. Ec. D. *	14	13	34 6.1	III. Sh. E.	20	3	43	I. Oc. R.	25	6	59
I. Oc. R. †		16	22	III. Tr. I.		3	56	I. Sh. I.	26	1	31
I. Sh. I. †	15	10	40	III. Tr. E.		5	36	I. Tr. I.		1	55
I. Tr. I. *		11	18	I. Sh. I.		18	5	I. Sh. E.		3	43
I. Sh. E. *		12	52	I. Tr. I.		18	37	I. Tr. E.		4	6
I. Tr. E. *		13	29	I. Sh. E.		20	17	II. Ec. D. *	10	34	42.5
II. Ec. D.	18	43	18.8	I. Tr. E.		20	47	II. Oc. R. *		13	36
II. Oc. R.		22	11	II. Sh. I.	21	3	4	I. Ec. D.		22	53 12.6
I. Ec. D.	16	8	2 28.9	II. Tr. I.		4	7	I. Oc. R.	27	1	25
I. Oc. R. *		10	48	II. Sh. E.		5	25	III. Sh. I.		5	33
III. Ec. D. *	11	52	11.0	II. Tr. E.		6	22	III. Tr. I.		7	16
III. Ec. R. *	13	45	18.4	I. Ec. D. *	15	27	52.7	III. Sh. E.		7	42
III. Oc. D. *	14	25		I. Oc. R.		18	7	III. Tr. E. †		8	56
III. Oc. R. *		16	4	I. Sh. I. * 22	12	34		I. Sh. I.		19	59
I. Sh. I.	17	5	8	I. Tr. I. *		13	3	I. Tr. I.		20	21
I. Tr. I.		5	44	I. Sh. E. *		14	46	I. Sh. E.		22	11
I. Sh. E.		7	21	I. Tr. E. *		15	14	I. Tr. E.		22	32
I. Tr. E.		7	55	II. Ec. D.	21	17	36.0	II. Sh. I.	28	5	39
II. Sh. I. *	13	48		II. Oc. R.	23	0	28	II. Tr. I.		6	24
II. Tr. I. *	15	0		I. Ec. D. †		9	56 17.0	II. Sh. E.		8	0
II. Sh. E. †	16	9		I. Oc. R. *		12	33	II. Tr. E. †		8	38
II. Tr. E.	17	15		III. Ec. D. *	15	49	46.9	I. Ec. D.	17	21	44.5
I. Ec. D.	18	2	30 57.4	III. Ec. R.	17	43	0.1	I. Oc. R.		19	51
I. Oc. R.		5	14	III. Oc. D.	17	45		I. Sh. I. * 29	14	27	
I. Sh. I.		23	37	III. Oc. R.	19	25		I. Tr. I. *		14	47
I. Tr. I.	19	0	10	I. Sh. I.	24	7	2	I. Sh. E.		16	39
I. Sh. E.		1	49	I. Tr. I.		7	29	I. Tr. E.		16	58
I. Tr. E.		2	21	I. Sh. E. †		9	14	II. Ec. D.	23	52	8.7
II. Ec. D.	8	0	19.5	I. Tr. E. †		9	40	II. Oc. R.	30	2	43
II. Oc. R. *	11	20		II. Sh. I. †		16	22	I. Ec. D. *	11	50	10.3
I. Ec. D.	20	59	22.1	II. Tr. I.		17	16	I. Oc. R. *		14	17
I. Oc. R.		23	40	II. Sh. E.		18	43	III. Ec. D.	19	47	29.3
III. Sh. I.	20	1	35	II. Tr. E.		19	30	III. Oc. R.		22	44
				I. Ec. D.	25	4	24 46.5				

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite. Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

APRIL.

Phases of the Eclipses of the Satellites for an inverting Telescope.

<p>I. $\begin{matrix} d \\ * \end{matrix} \begin{array}{c} \bigcirc \\ \hline \hline \hline \end{array}$</p>	<p>III. $\begin{matrix} d & r \\ * & * \end{matrix} \begin{array}{c} \bigcirc \\ \hline \hline \hline \end{array}$</p>
<p>II. $\begin{matrix} d \\ * \end{matrix} \begin{array}{c} \bigcirc \\ \hline \hline \hline \end{array}$</p>	<p>IV. No Eclipse of this Satellite. $\begin{array}{c} \bigcirc \\ \hline \hline \hline \end{array}$</p>

MAY.

	$d \quad h \quad m \quad s$	$d \quad h \quad m \quad s$
I. Sh. I. \uparrow	1 8 56	II. Tr. E. $*$ 5 10 54
I. Tr. I. \uparrow	9 13	I. Ec. D. 19 15 41.7
I. Sh. E. $*$	11 8	I. Oc. R. 21 35
I. Tr. E. $*$	11 24	I. Sh. I. \uparrow 6 16 21
II. Sh. I.	18 57	I. Tr. I. 16 31
II. Tr. I.	19 32	I. Sh. E. 18 33
II. Sh. E.	21 18	I. Tr. E. 18 42
II. Tr. E.	21 46	II. Ec. D. 7 2 26 57.4
I. Ec. D. 2 6 18 41.0		II. Oc. R. 4 58
I. Oc. R. \uparrow 8 43		I. Ec. D. $*$ 13 44 9.1
I. Sh. I. 3 3 24		I. Oc. R. \uparrow 16 1
I. Tr. I. 3 39		III. Ec. D. 23 45 42.0
I. Sh. E. 5 37		III. Oc. R. 8 2 2
I. Tr. E. 5 50		I. Sh. I. $*$ 10 50
II. Ec. D. $*$ 13 9 21.4		I. Tr. I. $*$ 10 57
II. Oc. R. \uparrow 15 51		I. Sh. E. $*$ 13 2
I. Ec. D. 4 0 47 8.5		I. Tr. E. $*$ 13 7
I. Oc. R. 3 9		II. Sh. I. 21 32
III. Sh. I. $*$ 9 31		II. Tr. I. 21 46
III. Tr. I. $*$ 10 32		II. Sh. E. 23 53
III. Sh. E. $*$ 11 40		II. Tr. E. 9 0 1
III. Tr. E. $*$ 12 15		I. Ec. D. \uparrow 8 12 41.0
I. Sh. I. 21 53		I. Oc. R. $*$ 10 27
I. Tr. I. 22 5		I. Sh. I. 10 5 18
I. Sh. E. 5 0 5		I. Tr. I. 5 23
I. Tr. E. 0 16		I. Sh. E. 7 30
II. Sh. I. \uparrow 8 15		I. Tr. E. 7 33
II. Tr. I. \uparrow 8 39		II. Ec. D. \uparrow 15 44 16.2
II. Sh. E. $*$ 10 35		
		II. Oc. R. 10 18 5
		I. Ec. D. 11 2 41 9.9
		I. Oc. R. 4 53
		III. Sh. I. $*$ 13 30
		III. Tr. I. $*$ 13 48
		III. Tr. E. \uparrow 15 33
		III. Sh. E. \uparrow 15 38
		I. Sh. I. 23 47
		I. Tr. I. 23 49
		I. Sh. E. 12 1 59
		I. Tr. E. 1 59
		II. Sh. I. $*$ 10 50
		II. Tr. I. $*$ 10 53
		II. Tr. E. $*$ 13 9
		II. Sh. E. $*$ 13 11
		I. Oc. D. 21 8
		I. Oc. R. 23 19
		I. Sh. I. 13 18 15
		I. Tr. I. 18 15
		I. Tr. E. 20 25
		I. Sh. E. 20 27
		II. Oc. D. 14 4 57
		II. Ec. R. 7 17 2.9
		I. Oc. D. \uparrow 15 34
		I. Ec. R. 17 45 42.2
		III. Oc. D. 15 3 34
		III. Ec. R. 5 37 38.3
		I. Tr. I. $*$ 12 40

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

MAY.

d h m s	d h m s	d h m s
I. Sh. I. * 15 12 44	I. Tr. E. 20 22 9	I. Tr. E. 26 5 28
I. Tr. E. * 14 51	I. Sh. E. 22 22	I. Sh. E. 5 47
I. Sh. E. * 14 56	II. Oc. D. 21 7 12	II. Tr. I. † 15 22
II. Tr. I. 16 0 1	II. Ec. R. * 9 52 29.3	II. Sh. I. 16 0
II. Sh. I. 0 7	I. Oc. D. 17 18	II. Tr. E. 17 39
II. Tr. E. 2 16	I. Ec. R. 19 39 50.8	II. Sh. E. 18 21
II. Sh. E. 2 28	III. Oc. D. 22 6 49	I. Oc. D. 27 0 36
I. Oc. D. * 10 0	III. Ec. R. * 9 36 48.2	I. Ec. R. 3 5 33.3
I. Ec. R. * 12 14 15.1	I. Tr. I. * 14 24	I. Tr. I. 21 43
I. Tr. I. 17 7 6	I. Sh. I. * 14 38	I. Sh. I. 22 4
I. Sh. I. 7 12	I. Tr. E. 16 35	I. Tr. E. 23 54
I. Tr. E. * 9 17	I. Sh. E. 16 50	I. Sh. E. 28 0 16
I. Sh. E. * 9 25	II. Tr. I. 23 2 15	II. Oc. D. * 9 27
II. Oc. D. 18 5	II. Sh. I. 2 43	II. Ec. R. * 12 28 12.6
II. Ec. R. 20 34 30.3	II. Tr. E. 4 31	I. Oc. D. 19 2
I. Oc. D. 18 4 26	II. Sh. E. 5 4	I. Ec. R. 21 34 5.0
I. Ec. R. 6 42 45.2	I. Oc. D. * 11 44	III. Oc. D. * 29 10 6
III. Tr. I. 17 3	I. Ec. R. * 14 8 25.0	III. Ec. R. * 13 35 28.8
III. Sh. I. 17 28	I. Tr. I. † 24 8 50	I. Tr. I. 16 9
III. Tr. E. 18 51	I. Sh. I. * 9 7	I. Sh. I. 16 33
III. Sh. E. 19 36	I. Tr. E. * 11 2	I. Tr. E. 18 20
I. Tr. I. 19 1 32	I. Sh. E. * 11 19	I. Sh. E. 18 45
I. Sh. I. 1 41	II. Oc. D. 20 19	II. Tr. I. 30 4 29
I. Tr. E. 3 43	II. Ec. R. 23 10 2.9	II. Sh. I. 5 18
I. Sh. E. 3 53	I. Oc. D. 25 6 10	II. Tr. E. 6 46
II. Tr. I. * 13 7	I. Ec. R. † 8 36 56.5	II. Sh. E. 7 39
II. Sh. I. * 13 25	III. Tr. I. 20 19	I. Oc. D. * 13 28
II. Tr. E. † 15 23	III. Sh. I. 21 26	I. Ec. R. 16 2 40.4
II. Sh. E. † 15 46	III. Tr. E. 22 10	I. Tr. I. * 31 10 35
I. Oc. D. 22 52	III. Sh. E. 23 35	I. Sh. I. * 11 1
I. Ec. R. 20 1 11 20.7	I. Tr. I. 26 3 17	I. Tr. E. * 12 46
I. Tr. I. 19 58	I. Sh. I. 3 35	I. Sh. E. * 13 13
I. Sh. I. 20 10		II. Oc. D. 22 35

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

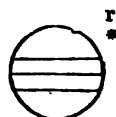
MAY.

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.



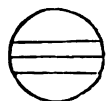
III.



II.



IV.



JUNE.

	d	h	m	s		d	h	m	s		d	h	m	s
II. Ec. R.	1	145	52	5	I. Tr. I.	5	17	54		II. Sh. E.	9	23	31	
I. Oc. D.		7	54		I. Sh. I.		18	27		I. Oc. D.	10	4	6	
I. Ec. R. *	10	31	13	4	I. Tr. E.	20	5			I. Ec. R.	6	54	14	5
III. Tr. I.	23	37			I. Sh. E.	20	39			I. Tr. I.	11	1	13	
III. Sh. I.	2	1	25		II. Tr. I.	6	6	45		I. Sh. I.		1	53	
III. Tr. E.		1	31		II. Sh. I.		7	52		I. Tr. E.		3	25	
III. Sh. E.		3	34		II. Tr. E. †		9	3		I. Sh. E.		4	5	
I. Tr. I.		5	1		II. Sh. E. *		10	13		II. Oc. D. †		14	1	
I. Sh. I.		5	30		I. Oc. D.		15	13		II. Ec. R.		17	40	27
I. Tr. E.		7	13		I. Ec. R.		17	57	10	I. Oc. D.		22	32	
I. Sh. E.		7	42		I. Tr. I. *	7	12	20		I. Ec. R.	12	1	22	49
II. Tr. I.		17	37		I. Sh. I. *		12	56		III. Oc. D.		16	46	
II. Sh. I.		18	35		I. Tr. E. †		14	32		III. Oc. R.		18	45	
II. Tr. E.		19	54		I. Sh. E.		15	8		III. Ec. D.		19	38	10
II. Sh. E.		20	56		II. Oc. D.	8	0	52		I. Tr. I.		19	40	
I. Oc. D.	3	2	20		II. Ec. R.		4	21	57	I. Sh. I.		20	22	
I. Ec. R.		4	59	51	I. Oc. D. *		9	39		III. Ec. R.		21	32	51
I. Tr. I.		23	28		I. Ec. R. *		12	25	35	I. Tr. E.		21	51	
I. Sh. I.		23	58		III. Tr. I.	9	2	58		I. Sh. E.		22	34	
I. Tr. E.	4	1	39		III. Tr. E.		4	55		II. Tr. I. †	13	9	2	
I. Sh. E.		2	10		III. Sh. I.		5	24		II. Sh. I. *		10	27	
II. Oc. D. *		11	43		I. Tr. I.		6	47		II. Tr. E. *		11	20	
II. Ec. R.		15	4	12	I. Sh. I.		7	24		II. Sh. E. *		12	48	
I. Oc. D.		20	47		III. Sh. E.		7	33		I. Oc. D.		16	59	
I. Ec. R.		23	28	24	I. Tr. E. †		8	58		I. Ec. R.		19	51	26
III. Oc. D. *	5	13	25		I. Sh. E. *		9	37		I. Tr. I. †	14	14	6	
III. Oc. R.		15	20		II. Tr. I.		19	53		I. Sh. I.		14	50	
III. Ec. D.		15	39	52	II. Sh. I.		21	10		I. Tr. E.		16	18	
III. Ec. R.		17	34	16	II. Tr. E.		22	11						

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite. Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

JUNE.

I. Sh. E.	14 17 3	d h m s
II. Oc. D.	15 3 10	
II. Ec. R.	6 58 18.3	
I. Oc. D. *	11 25	
I. Ec. R.	14 20 2.2	
III. Tr. I.	16 6 22	
III. Tr. E. †	8 22	
I. Tr. I. †	8 33	
I. Sh. I. †	9 19	
III. Sh. I. †	9 23	
I. Tr. E. *	10 45	
I. Sh. E. *	11 31	
III. Sh. E. *	11 33	
II. Tr. I.	22 11	
II. Sh. I.	23 45	
II. Tr. E.	17 0 30	
II. Sh. E.	2 6	
I. Oc. D.	5 52	
I. Ec. R. †	8 48 42.3	
I. Tr. I.	18 3 0	
I. Sh. I.	3 48	
I. Tr. E.	5 11	
I. Sh. E.	6 0	
II. Oc. D.	16 20	
II. Ec. R.	20 16 56.9	
I. Oc. D.	19 0 19	
I. Ec. R.	3 17 18.4	
III. Oc. D.	20 11	
I. Tr. I.	21 27	
III. Oc. R.	22 13	
I. Sh. I.	22 17	
III. Ec. D.	23 36 34.0	
I. Tr. E.	23 38	
I. Sh. E.	20 0 29	d h m s
III. Ec. R.	1 31 33.5	
II. Tr. I. *	11 20	
II. Sh. I. †	13 2	
II. Tr. E. †	13 40	
II. Sh. E.	15 23	
I. Oc. D.	18 45	
I. Ec. R.	21 45 56.7	
I. Tr. I.	21 15 54	
I. Sh. I.	16 45	
I. Tr. E.	18 5	
I. Sh. E.	18 57	
II. Oc. D.	22 5 31	
II. Ec. R. *	9 34 53.1	
I. Oc. D. †	13 12	
I. Ec. R.	16 14 33.2	
III. Tr. I. *	23 9 49	
I. Tr. I. *	10 21	
I. Sh. I. *	11 14	
III. Tr. E. *	11 52	
I. Tr. E. †	12 32	
III. Sh. I. †	13 22	
I. Sh. E. †	13 26	
III. Sh. E.	15 32	
II. Tr. I.	24 0 30	
II. Sh. I.	2 20	
II. Tr. E.	2 50	
II. Sh. E.	4 41	
I. Oc. D.	7 39	
I. Ec. R. *	10 43 14.2	
I. Tr. I.	25 4 47	
I. Sh. I.	5 43	
I. Tr. E.	6 59	
I. Sh. E.	7 55	
II. Oc. D.	25 18 42	d h m s
II. Ec. R.	22 53 40.4	
I. Oc. D.	26 2 6	
I. Ec. R.	5 11 51.1	
I. Tr. I.	23 15	
III. Oc. D.	23 40	
I. Sh. I.	27 0 11	
I. Tr. E.	1 27	
III. Oc. R.	1 45	
I. Sh. E.	2 24	
III. Ec. D.	3 35 28.0	
III. Ec. R.	5 30 47.4	
II. Tr. I.	13 41	
II. Sh. I.	15 37	
II. Tr. E.	16 1	
II. Sh. E.	17 58	
I. Oc. D.	20 33	
I. Ec. R.	23 40 30.6	
I. Tr. I.	28 17 42	
I. Sh. I.	18 40	
I. Tr. E.	19 54	
I. Sh. E.	20 52	
II. Oc. D.	29 7 54	
II. Ec. R. †	12 11 40.9	
I. Oc. D.	15 0	
I. Ec. R.	18 9 8.1	
I. Tr. I. †	30 12 9	
I. Sh. I.	13 9	
III. Tr. I.	13 20	
I. Tr. E.	14 21	
I. Sh. E.	15 21	
III. Tr. E.	15 27	
III. Sh. I.	17 22	
III. Sh. E.	19 31	

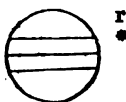
The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

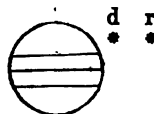
JUNE.

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.



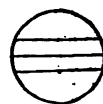
III.



II.



IV.

No Eclipse
of this Satellite.

JULY.

	d	h	m	s		d	h	m	s		d	h	m	s
II. Tr. I.	1	2	52		I. Sh. I.	5	20	35		I. Ec. R. †	10	9	1	7.4
II. Sh. I.		4	55		I. Tr. E.		21	43		I. Tr. I.	11	2	54	
II. Tr. E.		5	12		I. Sh. E.		22	47		I. Sh. I.		4	2	
II. Sh. E.		7	16		II. Oc. D. *	6	10	19		I. Tr. E.		5	6	
I. Oc. D. *		9	27		II. Ec. R.		14	48	40.6	I. Sh. E.		6	14	
I. Ec. R. †	12	37	49.7		I. Oc. D.		16	49		III. Oc. D.		6	51	
I. Tr. I.	2	6	36		I. Ec. R.		20	3	46.1	III. Oc. R. †		9	2	
I. Sh. I.		7	38		I. Tr. I.	7	13	58		III. Ec. D. †		11	33	51.2
I. Tr. E. †		8	48		I. Sh. I.		15	4		III. Ec. R.		13	29	55.8
I. Sh. E. *		9	50		I. Tr. E.		16	11		II. Tr. I.		18	28	
II. Oc. D.	21	6			III. Tr. I.		16	55		II. Sh. I.		20	47	
II. Ec. R.	3	1	30	36.0	I. Sh. E.		17	16		II. Tr. E.		20	49	
I. Oc. D.		3	54		III. Tr. E.		19	6		II. Sh. E.		23	8	
I. Ec. R.		7	6	28.0	III. Sh. I.		21	21		I. Oc. D.	12	0	12	
I. Tr. I.	4	1	4		III. Sh. E.		23	31		I. Ec. R.		3	29	47.8
I. Sh. I.		2	6		II. Tr. I.	8	5	15		I. Tr. I.		21	21	
III. Oc. D.		3	13		II. Sh. I.		7	29		I. Sh. I.		22	30	
I. Tr. E.		3	16		II. Tr. E.		7	36		I. Tr. E.		23	34	
I. Sh. E.		4	19		II. Sh. E. *		9	51		I. Sh. E.	13	0	43	
III. Oc. R.		5	22		I. Oc. D. *		11	17		II. Oc. D.		12	46	
III. Ec. D.		7	34	20.8	I. Ec. R.		14	32	28.3	II. Oc. R.		15	8	
III. Ec. R. *		9	30	2.1	I. Tr. I. †	9	8	26		II. Ec. D.		15	9	49.9
II. Tr. I.		16	3		I. Sh. I. *		9	33		II. Ec. R.		17	25	50.9
II. Sh. I.		18	12		I. Tr. E. *		10	38		I. Oc. D.		18	39	
II. Tr. E.		18	24		I. Sh. E. †		11	45		I. Ec. R.		21	58	26.8
II. Sh. E.		20	33		II. Oc. D.		23	32		I. Tr. I.	14	15	49	
I. Oc. D.		22	22		II. Ec. R.	10	4	7	42.6	I. Sh. I.		16	59	
I. Ec. R.	5	1	35	7.9	I. Oc. D.		5	44		I. Tr. E.		18	2	
I. Tr. I.		19	31							I. Sh. E.		19	11	

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

JULY.

d h m s				d h m s				d h m s			
III. Tr. I.	14	20	35	II. Oc. D.	20	15	15	II. Tr. E.	26	1	45
III. Tr. E.	22	48		II. Oc. R.	17	38		II. Sh. I.	1	56	
III. Sh. I.	15	1	20	II. Ec. D.	17	47	0°3	I. Oc. D.	3	54	
III. Sh. E.	3	30		II. Ec. R.	20	3	10°0	II. Sh. E.	4	18	
II. Tr. I.	7	41		I. Oc. D.	20	30		I. Ec. R.	7	19	13°4
II. Tr. E. *	10	2		I. Ec. R.	23	53	9°4	I. Tr. I.	27	1	6
II. Sh. I. *	10	4		I. Tr. I.	21	17	41	I. Sh. I.	2	21	
II. Sh. E.	12	25		I. Sh. I.	18	54		I. Tr. E.	3	18	
I. Oc. D.	13	7		I. Tr. E.	19	54		I. Sh. E.	4	33	
I. Ec. R.	16	27	9°3	I. Sh. E.	21	7		II. Oc. D.	17	47	
I. Tr. I. *	16	10	17	III. Tr. I.	22	0	20	II. Oc. R.	20	10	
I. Sh. I. †	11	28		III. Tr. E.	2	36		II. Ec. D.	20	24	18°4
I. Tr. E.	12	30		III. Sh. I.	5	19		I. Oc. D.	22	23	
I. Sh. E.	13	40		III. Sh. E.	7	30		II. Ec. R.	22	40	37°0
II. Oc. D.	17	2	0	II. Tr. I. *	10	8		I. Ec. R.	28	1	47 53°3
II. Oc. R.	4	22		II. Tr. E.	12	31		I. Tr. I.	19	34	
II. Ec. D.	4	28	53°7	II. Sh. I.	12	39		I. Sh. I.	20	50	
II. Ec. R.	6	44	59°0	I. Oc. D.	14	58		I. Tr. E.	21	47	
I. Oc. D.	7	35		II. Sh. E.	15	0		I. Sh. E.	23	2	
I. Oc. R. †	10	55	49°2	I. Ec. R.	18	21	52°2	III. Tr. I.	29	4	10
I. Tr. I.	18	4	45	I. Tr. I.	23	12	9	III. Tr. E.	6	28	
I. Sh. I.	5	57		I. Sh. I.	13	23		III. Sh. I. *	9	19	
I. Tr. E.	6	58		I. Tr. E.	14	22		III. Sh. E.	11	30	
I. Sh. E. †	8	9		I. Sh. E.	15	36		II. Tr. I.	12	38	
III. Oc. D. *	10	33		II. Oc. D.	24	4	31	II. Tr. E.	15	1	
III. Oc. R.	12	48		II. Oc. R.	6	54		II. Sh. I.	15	14	
III. Ec. D.	15	32	46°7	II. Ec. D.	7	6	9°2	I. Oc. D.	16	51	
III. Ec. R.	17	29	15°5	II. Ec. R. *	9	22	23°3	II. Sh. E.	17	35	
II. Tr. I.	20	54		I. Oc. D. *	9	26		I. Ec. R.	20	16	36°1
II. Tr. E.	23	16		I. Ec. R.	12	50	32°5	I. Tr. I.	30	14	3
II. Sh. I.	23	21		I. Tr. I.	25	6	38	I. Sh. I.	15	19	
II. Sh. E.	19	1	43	I. Sh. I.	7	52		I. Tr. E.	16	15	
I. Oc. D.	2	3		I. Tr. E. †	8	50		I. Sh. E.	17	31	
I. Ec. R.	5	24	29°9	I. Sh. E. *	10	5		II. Oc. D.	31	7	4
I. Tr. I.	23	13		III. Oc. D.	14	20		II. Oc. R. *	9	27	
I. Sh. I.	20	0	25	III. Oc. R.	16	37		II. Ec. D. *	9	43	31°4
I. Tr. E.	1	26		III. Ec. D.	19	31	42°3	I. Oc. D.	11	19	
I. Sh. E.	2	38		III. Ec. R.	21	28	36°7	II. Ec. R.	11	59	54°6
				II. Tr. I.	23	23		I. Ec. R.	14	45	17°1

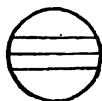
The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite. Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

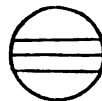
JULY.

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.

r
*

III.

d
* r
*

II.

d
* r
*

IV.

No Eclipse
of this Satellite.

AUGUST.

	d	h	m	s		d	h	m	s		d	h	m	s
I. Tr. I. †	1	8	31		III. Tr. E. †	5	10	24		II. Sh. I.	9	7	5	
I. Sh. I. *		9	47		III. Sh. I.		13	19		I. Oc. D. †		7	41	
I. Tr. E. †		10	44		II. Tr. I.		15	10		II. Sh. E. †		9	27	
I. Sh. E.		12	0		III. Sh. E.		15	30		I. Ec. R.		11	842.8	
III. Oc. D.		18	11		II. Tr. E.		17	33		I. Tr. I.	10	4	54	
III. Oc. R.		20	30		II. Sh. I.		17	48		I. Sh. I.		6	11	
III. Ec. D.		23	30	20.4	I. Oc. D.		18	44		I. Tr. E.		7	7	
III. Ec. R.	2	1	27	41.6	II. Sh. E.		20	10		I. Sh. E. †		8	24	
II. Tr. I.		1	54		I. Ec. R.		22	11	20.6	II. Oc. D.		22	38	
II. Tr. E.		4	17		I. Tr. I.	6	15	57		II. Oc. R.	11	1	21	
II. Sh. I.		4	31		I. Sh. I.		17	14		II. Ec. D.		1	39	9.9
I. Oc. D.		5	47		I. Tr. E.		18	10		I. Oc. D.		2	10	
II. Sh. E.		6	52		I. Sh. E.		19	26		II. Ec. R.		3	55	47.6
I. Ec. R. *		9	13	57.9	II. Oc. D. †	7	9	39		I. Ec. R.		5	37	23.1
I. Tr. I.	3	3	0		II. Oc. R.		12	3		I. Tr. I.		23	23	
I. Sh. I.		4	16		II. Ec. D.		12	20	58.3	I. Sh. I.	12	0	40	
I. Tr. E.		5	12		I. Oc. D.		13	13		I. Tr. E.		1	36	
I. Sh. E.		6	29		II. Ec. R.		14	37	31.0	I. Sh. E.		2	53	
II. Oc. D.		20	22		I. Ec. R.		16	40	2.0	III. Tr. I.		12	2	
II. Oc. R.		22	45		I. Tr. I. †	8	10	25		III. Tr. E.		14	24	
II. Ec. D.		23	1	42.1	I. Sh. I.		11	43		III. Sh. I.		17	18	
I. Oc. D.	4	0	16		I. Tr. E.		12	38		II. Tr. I.		17	44	
II. Ec. R.		1	18	9.9	I. Sh. E.		13	55		III. Sh. E.		19	30	
I. Ec. R.		3	42	38.1	III. Oc. D.		22	6		II. Tr. E.		20	8	
I. Tr. I.		21	28		III. Oc. R.	9	0	27		II. Sh. I.		20	23	
I. Sh. I.		22	45		III. Ec. D.		3	29	1.4	I. Oc. D.		20	39	
I. Tr. E.		23	41		II. Tr. I.		4	27		II. Sh. E.		22	44	
I. Sh. E.	5	0	57		III. Ec. R.		5	26	50.8	I. Ec. R.	13	0	6	5.5
III. Tr. I. †		8	4		II. Tr. E.		6	50		I. Tr. I.		17	52	

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

AUGUST.

d h m s				d h m s				d h m s			
I. Sh. I.	13	19	9	I. Oc. D.	19	22	34	I. Sh. I.	26	4	31
I. Tr. E.	20	5		II. Tr. E.	22	44		I. Tr. E.	5	29	
I. Sh. E.	21	22		II. Sh. I.	22	57		I. Sh. E.	6	44	
II. Oc. D.	14	12	17	III. Sh. E.	23	30		III. Tr. I.	20	10	
II. Oc. R.	14	41		II. Sh. E.	20	1	19	III. Tr. E.	22	34	
II. Ec. D.	14	58	28.1	I. Ec. R.	2	0	50.1	II. Tr. I.	22	58	
I. Oc. D.	15	8		I. Tr. I.	19	48		I. Oc. D.	27	0	31
II. Ec. R.	17	15	10.9	I. Sh. I.	21	4		III. Sh. I.	1	17	
I. Ec. R.	18	34	47.0	I. Tr. E.	22	1		II. Tr. E.	1	23	
I. Tr. I.	15	12	21	I. Sh. E.	23	17		II. Sh. I.	1	32	
I. Sh. I.	13	38		II. Oc. D.	21	14	56	III. Sh. E.	3	30	
I. Tr. E.	14	34		I. Oc. D.	17	3		II. Sh. E.	3	54	
I. Sh. E.	15	51		II. Oc. R.	17	21		I. Ec. R.	3	55	34.0
III. Oc. D.	16	2	6	II. Ec. D.	17	35	59.9	I. Tr. I.	21	45	
III. Oc. R.	4	28		II. Ec. R.	19	52	52.8	I. Sh. I.	23	0	
II. Tr. I.	7	2		I. Ec. R.	20	29	31.7	I. Tr. E.	23	58	
III. Ec. D. †	9	28	8.7	I. Tr. I.	22	14	17	I. Sh. E.	28	1	12
II. Tr. E. †	7	26		I. Sh. I.	15	33		II. Oc. D.	17	38	
III. Ec. R. †	9	26	28.0	I. Tr. E.	16	31		I. Oc. D.	19	0	
I. Oc. D. †	9	37		I. Sh. E.	17	46	*	II. Oc. R.	20	3	
II. Sh. I. †	9	40		III. Oc. D.	23	6	9	II. Ec. D.	20	13	31.7
II. Sh. E.	12	2		III. Oc. R. †	8	33		I. Ec. R.	22	24	15.6
I. Ec. R.	13	3	27.8	II. Tr. I.	9	39		II. Ec. R.	22	30	34.8
I. Tr. I.	17	6	50	III. Ec. D.	11	27	9.0	I. Tr. I.	29	16	15
I. Sh. I. †	8	7		I. Oc. D.	11	33		I. Sh. I.	17	29	
I. Tr. E. †	9	3		II. Tr. E.	12	3		I. Tr. E.	18	28	
I. Sh. E.	10	19		II. Sh. I.	12	15		I. Sh. E.	19	41	
II. Oc. D.	18	1	36	III. Ec. R.	13	25	59.8	III. Oc. D.	30	10	17
II. Oc. R.	4	1		II. Sh. E.	14	36		II. Tr. I.	12	17	
I. Oc. D.	4	5		I. Ec. R.	14	58	12.0	III. Oc. R.	12	41	
II. Ec. D.	4	16	40.6	I. Tr. I. †	24	8	47	I. Oc. D.	13	29	
II. Ec. R.	6	33	28.4	I. Sh. I.	10	2		II. Tr. E.	14	42	
I. Ec. R. †	7	32	8.0	I. Tr. E.	11	0		II. Sh. I.	14	49	
I. Tr. I.	19	1	19	I. Sh. E.	12	15		III. Ec. D.	15	26	41.9
I. Sh. I.	2	36		II. Oc. D.	25	4	17	I. Ec. R.	16	52	55.6
I. Tr. E.	3	32		I. Oc. D.	6	2		II. Sh. E.	17	11	
I. Sh. E.	4	48		II. Oc. R.	6	42		III. Ec. R.	17	26	5.5
III. Tr. I.	16	4		II. Ec. D.	6	54	12.2	I. Tr. I.	31	10	44
III. Tr. E.	18	27		II. Ec. R. †	9	11	10.2	I. Sh. I.	11	57	
II. Tr. I.	20	20		I. Ec. R. †	9	26	52.4	I. Tr. E.	12	57	
III. Sh. I.	21	18		I. Tr. I.	26	3	16	I. Sh. E.	14	10	

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

AUGUST.

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.



r

III.



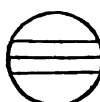
d r

II.



d r

IV.

No Eclipse
of this Satellite.

SEPTEMBER.

	d	h	m	s
II. Oc. D. †	1	6	59	
I. Oc. D. †		7	59	
II. Oc. R.		9	24	
II. Ec. D.		9	31	43.5
I. Ec. R.		11	21	35.6
II. Ec. R.		11	48	51.8
I. Tr. I.	2	5	14	
I. Sh. I.		6	27	
I. Tr. E. †		7	27	
I. Sh. E. †		8	39	
III. Tr. I.	3	0	19	
II. Tr. I.		1	37	
I. Oc. D.		2	28	
III. Tr. E.		2	44	
II. Tr. E.		4	2	
II. Sh. I.		4	6	
III. Sh. I.		5	16	
I. Ec. R.		5	50	16.8
II. Sh. E.		6	28	
III. Sh. E. †		7	29	
I. Tr. I.		23	43	
I. Sh. I.	4	0	55	
I. Tr. E.		1	56	
I. Sh. E.		3	8	
II. Oc. D.		20	21	
I. Oc. D.		20	57	
II. Oc. R.		22	46	
II. Ec. D.		22	51	2.5
I. Ec. R.	5	0	18	58.1

	d	h	m	s
II. Ec. R.	5	1	8	15.8
I. Tr. I.		18	13	
I. Sh. I.		19	24	
I. Tr. E.		20	26	
I. Sh. E.		21	37	
III. Oc. D.	6	14	27	
II. Tr. I.		14	58	
I. Oc. D.		15	27	
III. Oc. R.		16	53	
II. Tr. E.		17	23	
II. Sh. I.		17	24	
I. Ec. R.		18	47	37.7
III. Ec. D.		19	25	35.5
II. Sh. E.		19	46	
III. Ec. R.		21	25	33.2
I. Tr. I.	7	12	43	
I. Sh. I.		13	53	
I. Tr. E.		14	56	
I. Sh. E.		16	5	
II. Oc. D.	8	9	43	
I. Oc. D.		9	56	
II. Oc. R.		12	8	
II. Ec. D.		12	9	13.7
I. Ec. R.		13	16	17.4
II. Ec. R.		14	26	32.0
I. Tr. I. †	9	7	12	
I. Sh. I. †		8	21	
I. Tr. E.		9	25	
I. Sh. E.		10	34	

	d	h	m	s
II. Tr. I.	10	4	18	
I. Oc. D.		4	26	
III. Tr. I.		4	31	
II. Sh. I.	†	6	41	
II. Tr. E.	†	6	43	
III. Tr. E.	†	6	57	
I. Ec. R.	†	7	44	57.9
II. Sh. E.		9	3	
III. Sh. I.		9	16	
III. Sh. E.		11	19	
I. Tr. I.	11	1	42	
I. Sh. I.		2	50	
I. Tr. E.		3	55	
I. Sh. E.		5	3	
I. Oc. D.		22	55	
II. Oc. D.		23	5	
I. Ec. R.	12	2	13	39.1
II. Ec. R.		3	45	54.0
I. Tr. I.		20	12	
I. Sh. I.		21	19	
I. Tr. E.		22	25	
I. Sh. E.		23	32	
I. Oc. D.	13	17	25	
II. Tr. I.		17	39	
III. Oc. D.		18	41	
II. Sh. I.		19	58	
II. Tr. E.		20	5	
I. Ec. R.		20	42	18.1
III. Oc. R.		21	7	

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

SEPTEMBER.

	d	h	m	s		d	h	m	s		d	h	m	s
II. Sh. E.	13	22	20		I Tr. E.	20	0	24		I Tr. I.	25	5	41	
III. Ec. D.	23	24	24	6	I Sh. E.	1	27			I Sh. I. †		6	41	
III. Ec. R.	14	1	24	57.1	I Oc. D.	19	24			I Tr. E.		7	54	
I Tr. I.	14	41			II Tr. I.	20	22			I Sh. E.		8	54	
I Sh. I.	15	48			II Sh. I.	22	32			I Oc. D.	26	2	53	
I Tr. E.	16	55			I Ec. R.	22	36	56.9		II Oc. D.		4	38	
I Sh. E.	18	1			II Tr. E.	22	48			I Ec. R. †		6	2	55.4
I Oc. D.	15	11	54		III Oc. D.	22	56			II Ec. R.		9	0	57.1
II Oc. D.	12	28			II Sh. E.	21	0	55		I Tr. I.	27	0	11	
I Ec. R.	15	10	57.5		III Oc. R.	1	23			I Sh. I.		1	10	
II Ec. R.	17	4	8.7		III Ec. D.	3	22	54.3		I Tr. E.		2	24	
I Tr. I.	16	9	11		III Ec. R.	5	24	2.7		I Sh. E.		3	23	
I Sh. I.	10	17			I Tr. I.	16	41			I Oc. D.		21	23	
I Tr. E.	11	24			I Sh. I.	17	43			II Tr. I.		23	7	
I Sh. E.	12	30			I Tr. E.	18	54			I Ec. R.	28	0	31	33.2
I Oc. D. †	17	6	24		I Sh. E.	19	56			II Sh. I.		1	7	
II Tr. I. †		7	1		I Oc. D.	22	13	53		II Tr. E.		1	32	
III Tr. I.		8	47		II Oc. D.	15	14			III Oc. D.		3	15	
II Sh. I.	9	15			I Ec. R.	17	5	35.7		II Sh. E.		3	30	
II Tr. E.	9	26			II Ec. R.	19	41	41.2		III Oc. R. †		5	42	
I Ec. R.	9	39	37.4		I Tr. I.	23	11	11		III Ec. D. †		7	21	24.6
III Tr. E.	11	13			I Sh. I.	12	12			III Ec. R.		9	23	10.3
II Sh. E.	11	38			I Tr. E.	13	24			I Tr. I.		18	41	
III Sh. I.	13	15			I Sh. E.	14	25			I Sh. I.		19	38	
III Sh. E.	15	30			I Oc. D.	24	8	23		I Tr. E.		20	54	
I Tr. I.	18	3	41		II Tr. I.		9	44		I Sh. E.		21	51	
I Sh. I.	4	46			I Ec. R.	21	34	14.8		I Oc. D.	29	15	53	
I Tr. E.	5	54			II Sh. I.	11	50			II Oc. D.		18	2	
I Sh. E. †		6	58		II Tr. E.	12	10			I Ec. R.		19	0	11.7
I Oc. D.	19	0	54		III Tr. I.	13	5			II Ec. R.		22	19	8.1
II Oc. D.	1	51			II Sh. E.	14	12			I Tr. I.	30	13	11	
I Ec. R.	4	8	18.3		III Tr. E.	15	32			I Sh. I.		14	7	
II Ec. R. †		6	23	28.2	III Sh. I.	17	15			I Tr. E.		15	24	
I Tr. I.	22	11			III Sh. E.	19	30			I Sh. E.		16	20	
I Sh. I.	23	15												

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite. Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

SEPTEMBER.

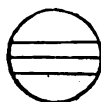
Phases of the Eclipses of the Satellites for an inverting Telescope.

I.



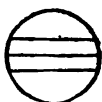
r

III.



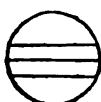
d r

II.



r

IV.

No Eclipse
of this Satellite.

OCTOBER.

	d	h	m	s		d	h	m	s		d	h	m	s
I. Oc. D.	1	10	23		III. Oc. R.	5	10	2		I. Oc. D.	10	6	53	
II. Tr. I.		12	29		III. Ec. D.		11	20	20.1	I. Ec. R.		9	52	2.3
I. Ec. R.		13	28	49.9	III. Ec. R.		13	22	44.3	II. Oc. D.		10	14	
II. Sh. I.		14	24		I. Tr. I.		20	41		II. Ec. R.		14	15	34.0
II. Tr. E.		14	55		I. Sh. I.		21	34		I. Tr. I.	11	4	12	
II. Sh. E.		16	47		I. Tr. E.		22	55		I. Sh. I.		5	0	
III. Tr. I.		17	25		I. Sh. E.		23	46		I. Tr. E. †		6	25	
III. Tr. E.		19	52		I. Oc. D.	6	17	53		I. Sh. E.		7	13	
III. Sh. I.		21	15		II. Oc. D.		20	50		I. Oc. D.	12	1	23	
III. Sh. E.		23	30		I. Ec. R.		20	54	45.2	I. Ec. R.		4	20	38.5
I. Tr. I.	2	7	41		II. Ec. R.	7	0	56	27.8	II. Tr. I.		4	39	
I. Sh. I.		8	36		I. Tr. I.		15	11		II. Sh. I. †		6	16	
I. Tr. E.		9	54		I. Sh. I.		16	2		II. Tr. E.		7	5	
I. Sh. E.		10	49		I. Tr. E.		17	25		II. Sh. E.		8	39	
I. Oc. D.	3	4	53		I. Sh. E.		18	15		III. Oc. D.		11	58	
II. Oc. D.		7	26		I. Oc. D.	8	12	23		III. Oc. R.		14	26	
I. Ec. R.		7	57	30.2	II. Tr. I.		15	15		III. Ec. D.		15	19	4.8
II. Ec. R.		11	38	19.6	I. Ec. R.		15	23	22.6	III. Ec. R.		17	22	8.1
I. Tr. I.	4	2	11		II. Sh. I.		16	59		I. Tr. I.		22	42	
I. Sh. I.		3	5		II. Tr. E.		17	41		I. Sh. I.		23	29	
I. Tr. E.		4	25		II. Sh. E.		19	22		I. Tr. E.	13	0	55	
I. Sh. E.		5	18		III. Tr. I.		21	47		I. Sh. E.		1	41	
I. Oc. D.		23	23		III. Tr. E.		9	0	15	I. Oc. D.		19	53	
II. Tr. I.	5	1	52		III. Sh. I.		1	14		I. Ec. R.		22	49	15.9
I. Ec. R.		2	26	7.1	III. Sh. E.		3	30		II. Oc. D.		23	39	
II. Sh. I.		3	41		I. Tr. I.		9	41		II. Ec. R.	14	3	33	39.1
II. Tr. E.		4	18		I. Sh. I.		10	31		I. Tr. I.		17	12	
II. Sh. E. †		6	4		I. Tr. E.		11	55		I. Sh. I.		17	57	
III. Oc. D.		7	35		I. Sh. E.		12	44		I. Tr. E.		19	26	

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

OCTOBER.

d h m s				d h m s				d h m s			
I. Sh. E.	14	20	10	I. Sh. E.	20	3	36	II. Tr. E.	26	12	40
I. Oc. D.	15	14	23	I. Oc. D.	21	54		II. Sh. E.	13	48	
I. Ec. R.	17	17	52.4	I. Ec. R.	21	0	43.43.8	III. Oc. D.	20	48	
II. Tr. I.	18	2		II. Oc. D.	22	29		III. Oc. R.	23	16	
II. Sh. I.	19	33		II. Ec. R.	6	10	41.3	III. Ec. D.	23	16	50.
II. Tr. E.	20	28		I. Tr. I.	19	13		III. Ec. R.	27	1	21
II. Sh. E.	21	56		I. Sh. I.	19	52		I. Tr. I.	2	44	
III. Tr. I.	16	2	11	I. Tr. E.	21	27		I. Sh. I.	3	18	
III. Tr. E.	4	38		I. Sh. E.	22	5		I. Tr. E.	4	58	
III. Sh. I. †	5	13		I. Oc. D.	22	16	24	I. Sh. E. †	5	31	
III. Sh. E.	7	29		I. Ec. R.	19	12	19.3	I. Oc. D.	23	54	
I. Tr. I.	11	42		II. Tr. I.	20	50		I. Ec. R.	28	2	38
I. Sh. I.	12	26		II. Sh. I.	22	8		II. Oc. D. †	5	19	
I. Tr. E.	13	56		II. Tr. E.	23	16		II. Ec. R.	8	47	32.
I. Sh. E.	14	39		II. Sh. E.	23	0	31	I. Tr. I.	21	15	
I. Oc. D.	17	8	53	III. Tr. I.	6	36		I. Sh. I.	21	47	
I. Ec. R.	11	46	31.6	III. Tr. E.	9	3		I. Tr. E.	23	28	
II. Oc. D.	13	4		III. Sh. I.	9	11		I. Sh. E.	29	0	0
II. Ec. R.	16	52	39.5	III. Sh. E.	11	28		I. Oc. D.	18	25	
I. Tr. I. †	18	6	13	I. Tr. I.	13	44		I. Ec. R.	21	6	43.
I. Sh. I.	6	55		I. Sh. I.	14	21		II. Tr. I.	23	38	
I. Tr. E.	8	26		I. Tr. E.	15	57		II. Sh. I.	30	0	42
I. Sh. E.	9	8		I. Sh. E.	16	34		II. Tr. E.	2	4	
I. Oc. D.	19	3	23	I. Oc. D.	24	10	54	II. Sh. E.	3	6	
I. Ec. R.	6	15	6.9	I. Ec. R.	13	40	57.8	III. Tr. I.	11	2	
II. Tr. I.	7	26		II. Oc. D.	15	54		III. Sh. I.	13	10	
II. Sh. I.	8	50		II. Ec. R.	19	29	34.9	III. Tr. E.	13	30	
II. Tr. E.	9	52		I. Tr. I.	25	8	14	III. Sh. E.	15	28	
II. Sh. E.	11	13		I. Sh. I.	8	49		I. Tr. I.	15	45	
III. Oc. D.	16	23		I. Tr. E.	10	27		I. Sh. I.	16	16	
III. Oc. R.	18	50		I. Sh. E.	11	2		I. Tr. E.	17	59	
III. Ec. D.	19	18	18.7	I. Oc. D. †	26	5	24	I. Sh. E.	18	29	
III. Ec. R.	21	22	2.4	I. Ec. R.	8	9	32.5	I. Oc. D.	31	12	55
I. Tr. I.	20	0	43	II. Tr. I.	10	14		I. Ec. R.	15	35	21.
I. Sh. I.	1	23		II. Sh. I.	11	25		II. Oc. D.	18	44	
I. Tr. E.	2	57						II. Ec. R.	22	6	19.

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

OCTOBER.

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.



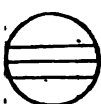
III.



II.



IV.

No Eclipse
of this Satellite.

THE SATELLITES OF JUPITER

ARE INVISIBLE DURING THE MONTHS OF NOVEMBER AND DECEMBER,

JUPITER BEING TOO NEAR TO THE SUN.

MEAN TIME.

MARCH.

CONFIGURATIONS AT 16^h.

Day of the Month.	<i>West.</i>			<i>East.</i>		
1		4	3	○	1	2
2		4	3	1	2	○
3			4	3	○	1
4			1	4	○	2
5				○	1	2
6	1	●	2	○		3
7			2	1	○	3
8			3	○	1	2
9	2	○	3	1	○	4
10			3	2	○	1
11			1	3	○	2
12				○	1	2
13			2	4	○	3
14			4	2	○	3
15		4	3	1	○	2
16	4	3	1	○		
17	4	3	2	○	1	
18	4		2	3	○	2
19		4		○	1	2
20			4	2	1	○
21			2	1	○	3
22	3	○		○	4	
23		3	1	○	2	4
24		3	2	○	1	4
25			3	1	○	2
26				○	1	3
27			1	○		3
28			2	○	1	3
29	1	●		3	○	4
30			3	4	1	○
31			4	3	2	○

This Table represents, at 16^h after *Mean Noon* of each day of the Month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page; the Satellites by points. The numerals, 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is on the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

MEAN TIME.

OCTOBER.

CONFIGURATIONS AT 5^h 30^m.

Day of the Month.	<i>West.</i>		<i>East.</i>	
1	4.	.1	○	2. 3.
2	4.	2. 3.	○	1.
3	4.	3.	.2	○
4	.4	.3	1. ○	2.
5	.4		.2 ○	.1
6	.4	.2 1.	○	.3
7		.4	○	.1. 3.
8		.1	○	.4 2. 3.
9		2. 3.	○	1. .4
10		3.	.1 ○	.4
11	1. ○	.3	○	.2 .4
12	2. ○		.3 ○	.1 .4.
13		.2 1.	○	.3 .4.
14			○	.2 .1 3. 4.
15		.1	○	2. 3. 4.
16		2. 3.	○	.1.
17		3. 4. .2 .1	○	
18	4. .3		○	1. .2
19	4.	.3	○	2.
20	.4	.2 1.	○	.3
21	.4		○	.1 .3
22	.4	.1	○	2. 3.
23	.4	2. 3.	○	1.
24		3. .2 .4 .1	○	
25		.3	○	1. .4 .2
26	.1 ●	.3	○	2. .4
27		2. 1.	○	.3 .4
28	.2 ●		○	.1 .3 .4
29		1.	○	2. 3. 4.
30		2.	○	3. 1. 4.
31		.2 .1	○	.4

This Table represents, at 5^h 30^m after *Mean Noon* of each day of the Month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page; the Satellites by points. The numerals, 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

MEAN TIME.

JANUARY.

d	h	m		°	'
2	12	6	♂ ♂ (- - - -	♂	5 59 N.
4	22	2	♂ ♂ (- - - -	♂	1 31 N.
5	13	55	♀ ♀ (- - - -	♀	2 28 N.
5	17	9	♀ greatest Hel. Lat. N.		
6	13	29	♂ ♂ (- - - -	♂	1 45 S.
8	5	19	♂ □ ○		
8	21	12	♀ greatest elong. 19 3 E.		
10	6	11	♀ ♀ (- - - -	♀	5 31 S.
11	23	59	♀ in ☿		
15	6	53	♀ Stationary.		
16	13	43	♀ in Perihelion.		
19	22	31	♂ ♂ (- - - -	♂	2 21 N.
21	17	46	♀ ♂ ♂ Ophiuchi*	0	9 S.
22	21	36	♀ ♂ ♂ Ophiuchi*	(5 ^m .7)	W.
24	9	36	♂ ♂ ♂ Sagittarii*	(1 ^m .4)	E.
24	15	58	♀ Inf. ♂ ○		
24	20	29	♂ ♂ ♂ Sagittarii*	0	1 N.
26	21	48	♀ greatest Hel. Lat. N.		
28	0	53	♂ Stationary.		
29	20	6	♂ ♂ (- - - -	♂	5 49 N.

FEBRUARY.

d	h	m		°	'
1	13	46	♂ ♂ (- - - -	♂	0 58 N.
4	10	1	♀ ♀ (- - - -	♀	1 49 S.
4	11	4	♂ ♂ (- - - -	♂	3 51 S.
5	7	10	♀ Stationary.		
5	17	42	♀ ♂ ♂ - - - -	♀	1 57 N.
5	18	58	♀ ♀ (- - - -	♀	1 54 S.
15	9	20	♂ □ ○		
16	3	14	♂ ♂ (- - - -	♂	2 31 N.
18	11	26	♀ greatest elong. 26 31 W.		
19	9	16	♀ in ☿		
26	0	21	♂ ♂ (- - - -	♂	5 46 N.
27	16	10	♂ Stationary.		
29	0	14	♂ ♂ (- - - -	♂	0 33 N.
29	13	23	♀ in Aphelion.		

MARCH.

d	h	m		°	'
1	18	36	♀ in ☿		
4	8	53	♂ ♂ (- - - -	♂	5 38 S.
5	8	27	♀ ♀ (- - - -	♀	5 24 S.
6	7	2	♀ ♂ (- - - -	♀	7 20 S.
7	14	30	♀ ♂ , Aquarii *	(1 ^m .1)	E.
10	22	13	♂ □ ○		
13	0	28	♂ Stationary.		
14	10	26	♂ ♂ (- - - -	♂	2 47 N.
15	16	35	♀ ♂ ♂ Capricor.*	0	1 N.
15	17	42	♀ ♂ ♂ Capricor.*	(0 ^m .2)	W.
19	20	10	○ enters ♄, Spring comm ^a .		
20	23	15	♀ greatest Hel. Lat. S.		
24	3	2	♂ ♂ (- - - -	♂	5 52 N.
27	5	32	♂ ♂ (- - - -	♂	0 25 N.
28	15	15	♂ ♂ , Capricor.*	(2 ^m .5)	E.
29	10	43	♂ ♂ , Capricor.*	0	10 S.

APRIL.

d	h	m		°	'
2	5	57	♂ ♂ (- - - -	♂	6 45 S.
3	5	36	♀ in Sup. ♂ ○		
3	18	8	♂ ♂ ○		
4	5	53	♀ ♀ (- - - -	♀	6 18 S.
4	23	29	♀ in Aphelion.		
6	10	4	♀ ♀ (- - - -	♀	3 1 S.
8	23	16	♀ in ☿		
10	8	38	♂ ♂ , Aquarii *	(9 ^m .0)	E.
10	20	22	♂ ♂ (- - - -	♂	3 1 N.
11	18	5	♀ ♂ ♂ Capricor.*	(8 ^m .4)	W.
13	13	2	♀ in Perihelion.		
20	6	27	♂ ♂ (- - - -	♂	6 3 N.
22	19	17	♂ ♂ ♂ Aquarii *	(2 ^m .9)	W.
23	7	48	♂ ♂ (- - - -	♂	0 34 N.
23	21	5	♀ greatest Hel. Lat. N.		
27	15	5	♀ greatest Hel. Lat. S.		
29	22	10	♀ greatest elong. 20 43 E.		

MEAN TIME.

SEPTEMBER.

d	m		°	'	
2	2	47	♀	♂	(- - - - ♀ 5 24 N.
3	3	25	♀	♂	(- - - - ♀ 0 24 S.
4	1	7	♂	♂	(- - - - ♀ 4 36 N.
6	19	11	♂	♂	(- - - - ♀ 0 15 S.
10	8	22	♀		Stationary.
12	21	45	♀		greatest Hel. Lat. S.
13	16	25	♀	♂	♀ - - - - ♀ 5 36 S.
20	21	13	♂	♂	(- - - - ♂ 1 41 N.
21	18	15	♂	□	⊙
22	5	54	♂	♂	(- - - - ♀ 4 7 N.
22	7	16	⊙		enters ♄, Autumn comm ^a .
23	6	36	♀	♂	♂ - - - - ♀ 1 36 S.
23	12	17	♂	♂	Tauri - * (7 ^m .6) E.
23	14	51	♀		in Inf. ♂ ⊙
29	13	3	♀	♂	(- - - - ♀ 3 0 N.

OCTOBER.

d	h	m		°	'	
1	12	55	♂	♂	(- - - -	♂ 4 13 N.
1	21	46	♀			in ♄
1	22	29	♀			Stationary.
2	8	3	♀	♂	(- - - -	♀ 1 18 N.
4	9	15	♂	♂	(- - - -	♂ 0 52 S.
4	12	0	♂			Stationary.
6	11	35	♀			in Perihelion.
9	2	10	♀			greatest elong. 18 0 W.
11	21	0	♀	♂	♂ Libræ ✕	(4 ^m .4) E.
12	11	20	♀			in ♄
13	15	9	♂	♂	⊙	
16	19	33	♀			greatest Hel. Lat. N.
18	17	56	♂	♂	(- - - -	♂ 3 10 N.
19	14	12	♂	♂	(- - - -	♂ 4 15 N.
19	18	52	♂	♂	♂ Scorpii ✕	(8 ^m .0) E.
22	21	58	♂			in ♄
23	3	0	♂			Stationary.
25	7	16	♀	♂	♂ - - - -	♀ 0 44 S.
27	8	38	♀	♂	♂ - - - -	♀ 1 19 S.
29	1	55	♂	♂	(- - - -	♂ 3 55 N.
29	14	11	♀	♂	(- - - -	♀ 2 6 N.
30	-	-	⊙			eclipsed, invis. at Green ^b .

NOVEMBER.

d	h	m		°	'	
1	1	33	♂	♂	(- - - -	♂ 1 27 S.
1	11	26	♀	♂	(- - - -	♀ 3 25 S.
9	7	2	♀ in ☿			
9	19	5	♀ in Sup. ♂ ☉			
14	21	23	♂	♂	(- - - -	♂ 4 12 N.
15	16	22	♀ in Aphelion.			
15	22	39	♂	♂	(- - - -	♂ 4 12 N.
19	11	13	♀ in Aphelion.			
21	16	49	♀	♂	♂ - - - -	♀ 1 54 S.
25	15	46	♂	♂	(- - - -	♂ 3 38 N.
28	20	11	♂	♂	(- - - -	♂ 1 58 S.
29	0	0	♂ greatest Hel. Lat. N.			
29	15	51	♀	♂	(- - - -	♀ 6 17 S.
29	19	26	♂ ☉			
30	17	58	♂ ☿ ☉			

DECEMBER.

d	h	m		°	'	
1	14	44	♀♂	(- - - - ♀	6 42	S.
8	7	52	♀	greatest Hel.	Lat.	S.
9	21	2	♀	greatest Hel.	Lat.	S.
11	13	11	♂♂	(- - - - ♂	4 35	N.
13	6	8	♂♂	(- - - - ♀	4 5	N.
18	14	5	♂♂	⊙		
21	1	3	⊙	enters ♍,	Winter comm ^a .	
22	4	3	♀	greatest elong.	19 52	E.
23	5	15	♂♂	(- - - - ♀	3 20	N.
26	16	32	♂♂	(- - - - ♀	2 30	S.
28	13	8	♀♂	♂ Capricor. ✱	(7 ^m .1)	W.
28	21	3	♀	in ♄		
28	21	32	♀♂	♂ Capricor. ✱	(9 ^m .1)	E.
29	8	26	♀	Stationary.		
29	16	59	♀♂	(- - - - ♀	4 48	S.
30	5	46	♀♂	♂ Capricor. ✱	(9 ^m .8)	E.
31	13	56	♀♂	(- - - - ♀	7 1	S.

ELEMENTS FOR DETERMINING THE GEOCENTRIC POSITION,
MAGNITUDE, AND APPEARANCE OF SATURN'S RING.

Mean Noon.	p	a'	b'	a''	b''	l	l'
1863. Dec. 30	$-2^{\circ} 19' 9''$	$38^{\circ} 61'$	$+ 7^{\circ} 58'$	$25^{\circ} 68'$	$+ 5^{\circ} 04'$	$+ 11^{\circ} 19' 4''$	$+ 8^{\circ} 49' 1''$
1864. Jan. 19	$2 15' 5''$	$39^{\circ} 99'$	$7^{\circ} 97'$	$26^{\circ} 59'$	$5^{\circ} 30'$	$11 30' 1''$	$9 6' 0''$
Feb. 8	$2 15' 7''$	$41^{\circ} 33'$	$8^{\circ} 16'$	$27^{\circ} 49'$	$5^{\circ} 43'$	$11 23' 3''$	$9 22' 9''$
— 28	$2 20' 2''$	$42^{\circ} 49'$	$8^{\circ} 11'$	$28^{\circ} 26'$	$5^{\circ} 39'$	$11 0' 3''$	$9 39' 7''$
Mar. 19	$2 28' 8''$	$43^{\circ} 23'$	$7^{\circ} 82'$	$28^{\circ} 75'$	$5^{\circ} 20'$	$10 25' 2''$	$9 56' 4''$
April 8	$2 37' 8''$	$43^{\circ} 41'$	$7^{\circ} 36'$	$28^{\circ} 87'$	$4^{\circ} 90'$	$9 45' 7''$	$10 13' 0''$
— 28	$2 46' 8''$	$42^{\circ} 98'$	$6^{\circ} 84'$	$28^{\circ} 58'$	$4^{\circ} 55'$	$9 9' 3''$	$10 29' 5''$
May 18	$2 53' 8''$	$42^{\circ} 06'$	$6^{\circ} 39'$	$27^{\circ} 97'$	$4^{\circ} 25'$	$8 43' 9''$	$10 46' 0''$
June 7	$2 57' 3''$	$40^{\circ} 81'$	$6^{\circ} 08'$	$27^{\circ} 14'$	$4^{\circ} 04'$	$8 34' 2''$	$11 2' 4''$
— 27	$2 56' 7''$	$39^{\circ} 44'$	$5^{\circ} 97'$	$26^{\circ} 22'$	$3^{\circ} 97'$	$8 42' 1''$	$11 18' 7''$
July 17	$2 52' 2''$	$38^{\circ} 11'$	$6^{\circ} 04'$	$25^{\circ} 35'$	$4^{\circ} 01'$	$9 6' 9''$	$11 34' 8''$
Aug. 6	$2 44' 0''$	$36^{\circ} 96'$	$6^{\circ} 29'$	$24^{\circ} 58'$	$4^{\circ} 18'$	$9 46' 6''$	$11 50' 9''$
— 26	$2 32' 7''$	$36^{\circ} 05'$	$6^{\circ} 63'$	$23^{\circ} 97'$	$4^{\circ} 41'$	$10 35' 7''$	$12 6' 9''$
Sept. 15	$2 19' 0''$	$35^{\circ} 43'$	$7^{\circ} 09'$	$23^{\circ} 56'$	$4^{\circ} 71'$	$11 32' 5''$	$12 22' 8''$
Oct. 5	$2 3' 6''$	$35^{\circ} 13'$	$7^{\circ} 63'$	$23^{\circ} 36'$	$5^{\circ} 07'$	$12 32' 2''$	$12 38' 6''$
— 25	$1 47' 4''$	$35^{\circ} 15'$	$8^{\circ} 21'$	$23^{\circ} 37'$	$5^{\circ} 46'$	$13 31' 0''$	$12 54' 3''$
Nov. 14	$1 31' 4''$	$35^{\circ} 51'$	$8^{\circ} 84'$	$23^{\circ} 61'$	$5^{\circ} 88'$	$14 25' 1''$	$13 9' 9''$
Dec. 4	$1 16' 6''$	$36^{\circ} 18'$	$9^{\circ} 48'$	$24^{\circ} 06'$	$6^{\circ} 30'$	$15 11' 2''$	$13 25' 3''$
— 24	$1 4' 3''$	$37^{\circ} 16'$	$10^{\circ} 10'$	$24^{\circ} 71'$	$6^{\circ} 71'$	$15 46' 3''$	$13 40' 7''$
1865. Jan. 13	$-0 55' 6''$	$38^{\circ} 37'$	$+ 10^{\circ} 66'$	$25^{\circ} 51'$	$+ 7^{\circ} 09'$	$+ 16 8' 0''$	$+ 13 56' 0''$

p denotes the inclination of the Northern semi-minor axes of the Rings to the circle of Declination ; + East, — West.

a' the apparent outer *major* axis of the outer Ring.

b' ——— outer *minor* axis of the outer Ring ; + North surface visible,
— South surface visible.

a'' ——— inner *major* axis of the inner Ring.

b'' ——— inner *minor* axis of the inner Ring.

l the elevation of the Earth above the plane of the Ring, as seen from Saturn ;
+ North, — South.

l' the elevation of the Sun above the plane of the Ring, as seen from Saturn ;
+ North, — South.

MEAN TIME OF THE GREATEST LIBRATION OF THE MOON'S APPARENT DISC.

	d	h	
Jan.	3	17	S.E.
	15	21	S.W.
Feb.	1	1	S.E.
	13	3	S.W.
	29	3	S.E.
Mar.	12	10	S.W.
	27	13	S.E.
Apr.	9	12	S.W.
	22	20	S.E.
May	7	4	S.W.
	19	15	S.E.
June	3	1	S.W.
	16	5	S.E.
	29	9	S.W.
July	14	5	S.E.
	26	15	S.W.
Aug.	11	10	S.E.
	23	14	S.W.
Sept.	8	15	S.E.
	20	19	S.W.
Oct.	6	13	N.E.
	19	0	N.W.
Nov.	2	12	S.E.
	16	0	N.W.
	28	17	S.E.
Dec.	13	11	N.W.
	25	23	S.E.

The Moon's Libration is here supposed to take place in the plane of her Orbit :—and by the time of the greatest Libration of her Apparent Disc is to be understood the time about which, to an observer at the centre of the Earth, the variation of the Disc from its mean state has attained its maximum.

The right-hand column indicates the quadrant of the Moon's Disc in which the Libration takes place, and in which the greatest change of the Moon's surface will become visible.

ILLUMINATED PORTION OF THE DISCS OF VENUS AND MARS.

1864.	VENUS.	MARS.
Jan. 15	0.666	0.967
Feb. 14	0.765	0.947
Mar. 15	0.843	0.924
Apr. 15	0.907	0.900
May 15	0.955	0.878
June 15	0.988	0.859
July 15	1.000	0.847
Aug. 15	0.991	0.846
Sept. 15	0.961	0.864
Oct. 15	0.917	0.913
Nov. 15	0.858	0.985
Dec. 15	0.786	0.989

The numbers given in this Table represent the versed sines of the illuminated portion of the Discs, the apparent Diameters of the Planets being considered as *unity*.

EPHEMERIS OF STARS TO BE OBSERVED WITH THE PLANET,
NEAR THE OPPOSITION, NOVEMBER 30, 1864.

Month and Day.	Star.	Magnitude.	Apparent		Semidiameter in		Hor. Par.
			Right Ascension.	Declination.	R. A.	Dec.	
			^h ^m ^s	[°] ['] ["]	^s	["]	["]
Oct. 15	103 Tauri - -	6	4 59 54 ²²	N.24 4 56 ⁶			
	Mars- - - - -	N.	5 9 29 ⁰¹	22 38 54 ⁰	0 ⁵⁰	6 ⁸	13 ²
	o Tauri - - -	6	5 19 32 ⁴⁵	21 49 1 ¹			
16	103 Tauri - -	6	4 59 54 ²⁵	24 4 56 ⁶			
	Mars- - - - -	S.	5 9 54 ²³	22 41 44 ³	0 ⁵¹	6 ⁸	13 ³
	o Tauri - - -	6	5 19 32 ⁴⁸	21 49 1 ¹			
17	103 Tauri - -	6	4 59 54 ²⁷	24 4 56 ⁶			
	Mars- - - - -	N.	5 10 16 ⁰²	22 44 32 ⁵	0 ⁵¹	6 ⁹	13 ⁴
	o Tauri - - -	6	5 19 32 ⁵⁰	21 49 1 ¹			
18	103 Tauri - -	6	4 59 54 ³⁰	24 4 56 ⁷			
	Mars- - - - -	S.	5 10 34 ³¹	22 47 18 ⁹	0 ⁵¹	6 ⁹	13 ⁵
	o Tauri - - -	6	5 19 32 ⁵³	21 49 1 ¹			
19	103 Tauri - -	6	4 59 54 ³³	24 4 56 ⁷			
	Mars- - - - -	N.	5 10 49 ⁰²	22 50 3 ²	0 ⁵²	7 ⁰	13 ⁶
	o Tauri - - -	6	5 19 32 ⁵⁶	21 49 1 ¹			
20	103 Tauri - -	6	4 59 54 ³⁶	24 4 56 ⁸			
	Mars- - - - -	S.	5 11 0 ¹⁵	22 52 45 ⁶	0 ⁵²	7 ⁰	13 ⁷
	o Tauri - - -	6	5 19 32 ⁵⁹	21 49 1 ¹			
21	103 Tauri - -	6	4 59 54 ³⁹	24 4 56 ⁸			
	Mars- - - - -	N.	5 11 7 ⁶¹	22 55 26 ⁰	0 ⁵²	7 ¹	13 ⁸
	o Tauri - - -	6	5 19 32 ⁶¹	21 49 1 ¹			
22	103 Tauri - -	6	4 59 54 ⁴²	24 4 56 ⁸			
	Mars- - - - -	S.	5 11 11 ³⁴	22 58 4 ³	0 ⁵²	7 ¹	13 ⁹
	o Tauri - - -	6	5 19 32 ⁶⁴	21 49 1 ¹			
23	103 Tauri - -	6	4 59 54 ⁴⁵	24 4 56 ⁸			
	Mars- - - - -	N.	5 11 11 ³⁶	23 0 40 ⁶	0 ⁵³	7 ²	14 ⁰
	o Tauri - - -	6	5 19 32 ⁶⁷	21 49 1 ¹			
24	103 Tauri - -	6	4 59 54 ⁴⁷	24 4 56 ⁸			
	Mars- - - - -	S.	5 11 7 ⁵⁵	23 3 14 ⁷	0 ⁵³	7 ²	14 ¹
	o Tauri - - -	6	5 19 32 ⁷⁰	21 49 1 ¹			
25	103 Tauri - -	6	4 59 54 ⁴⁹	24 4 56 ⁸			
	Mars- - - - -	N.	5 10 59 ⁹³	23 5 46 ⁴	0 ⁵³	7 ³	14 ²
	o Tauri - - -	6	5 19 32 ⁷²	21 49 1 ¹			
26	103 Tauri - -	6	4 59 54 ⁵²	24 4 56 ⁸			
	Mars- - - - -	S.	5 10 48 ⁴⁷	23 8 16 ⁰	0 ⁵³	7 ³	14 ³
	o Tauri - - -	6	5 19 32 ⁷⁵	21 49 1 ¹			
27	103 Tauri - -	6	4 59 54 ⁵⁴	24 4 56 ⁸			
	Mars- - - - -	N.	5 10 33 ¹²	23 10 43 ¹	0 ⁵⁴	7 ⁴	14 ⁴
	o Tauri - - -	6	5 19 32 ⁷⁷	N.21 49 1 ¹			

**EPHEMERIS OF STARS TO BE OBSERVED WITH THE PLANET,
NEAR THE OPPOSITION, NOVEMBER 30, 1864.**

Month and Day.	Star.	Magnitude.	Apparent		Semidiameter in		Hor. Par.
			Right Ascension.	Declination.	R. A.	Dec.	
			h m s	° ' "	"	"	"
Oct. 28	103 Tauri - -	6	4 59 54.57	N.24 4 56.8			
	Mars - - - -	S.	5 10 13.87	23 13 7.6	0.54	7.5	14.5
	o Tauri - - -	6	5 19 32.80	21 49 1.1			
29	103 Tauri - -	6	4 59 54.60	24 4 56.9			
	Mars - - - -	N.	5 9 50.74	23 15 29.2	0.54	7.5	14.6
	o Tauri - - -	6	5 19 32.82	21 49 1.1			
30	103 Tauri - -	6	4 59 54.62	24 4 56.9			
	Mars - - - -	S.	5 9 23.68	23 17 47.8	0.54	7.6	14.7
	o Tauri - - -	6	5 19 32.85	21 49 1.1			
31	103 Tauri - -	6	4 59 54.65	24 4 56.9			
	Mars - - - -	N.	5 8 52.75	23 20 3.2	0.55	7.6	14.8
	o Tauri - - -	6	5 19 32.88	21 49 1.1			
Nov. 1	103 Tauri - -	6	4 59 54.67	24 4 57.0			
	Mars - - - -	N.	5 8 17.96	23 22 15.2	0.56	7.7	14.9
	o Tauri - - -	6	5 19 32.91	21 49 1.1			
2	103 Tauri - -	6	4 59 54.69	24 4 57.0			
	Mars - - - -	S.	5 7 39.34	23 24 23.7	0.56	7.8	15.0
	o Tauri - - -	6	5 19 32.93	21 49 1.1			
3	103 Tauri - -	6	4 59 54.71	24 4 57.0			
	Mars - - - -	N.	5 6 56.88	23 26 28.4	0.57	7.8	15.1
	o Tauri - - -	6	5 19 32.96	21 49 1.1			
4	103 Tauri - -	6	4 59 54.73	24 4 57.1			
	Mars - - - -	S.	5 6 10.69	23 28 28.9	0.57	7.9	15.2
	o Tauri - - -	6	5 19 32.99	21 49 1.1			
5	99 Tauri - - -	6½	4 49 38.94	23 44 0.8			
	Mars - - - -	N.	5 5 20.78	23 30 25.1	0.57	8.0	15.3
	o Tauri - - -	6	5 19 33.01	21 49 1.1			
6	99 Tauri - - -	6½	4 49 38.96	23 44 0.8			
	Mars - - - -	S.	5 4 27.23	23 32 16.8	0.57	8.0	15.4
	o Tauri - - -	6	5 19 33.03	21 49 1.0			
7	99 Tauri - - -	6½	4 49 38.98	23 44 0.8			
	Mars - - - -	N.	5 3 30.13	23 34 3.4	0.58	8.0	15.5
	o Tauri - - -	6	5 19 33.05	21 49 1.0			
8	99 Tauri - - -	6½	4 49 39.00	23 44 0.9			
	Mars - - - -	S.	5 2 29.53	23 35 44.9	0.58	8.0	15.5
	o Tauri - - -	6	5 19 33.07	21 49 1.0			
9	99 Tauri - - -	6½	4 49 39.03	23 44 0.9			
	Mars - - - -	N.	5 1 25.54	23 37 20.8	0.59	8.1	15.6
	o Tauri - - -	6	5 19 33.09	N.21 49 1.1			

EPHEMERIS OF STARS TO BE OBSERVED WITH THE PLANET,
NEAR THE OPPOSITION, NOVEMBER 30, 1864.

Month and Day.	Star.	Magnitude.	Apparent		Semidiameter in		Hor. Par.
			Right Ascension.	Declination.	R. A.	Dec.	
Nov. 10	99 Tauri - -	6½	h m s	° ' "	"	"	"
	Mars - - - -	S.	4 49 39.05	N.23 44 0.9	0.59	8.1	15.6
	n Tauri - - -	6	5 0 18.25	23 38 50.8			
11	99 Tauri - -	6½	4 49 39.07	23 44 0.9			
	Mars - - - -	N.	4 59 7.74	23 40 14.9	0.60	8.1	15.7
	n Tauri - - -	6	5 11 11.60	21 57 11.0			
12	99 Tauri - -	6½	4 49 39.09	23 44 1.0			
	Mars - - - -	S.	4 57 54.11	23 41 32.5	0.59	8.1	15.7
	n Tauri - - -	6	5 11 11.63	21 57 11.0			
13	99 Tauri - -	6½	4 49 39.11	23 44 1.0			
	Mars - - - -	N.	4 56 37.53	23 42 43.7	0.60	8.1	15.7
	n Tauri - - -	6	5 11 11.65	21 57 11.0			
14	99 Tauri - -	6½	4 49 39.13	23 44 1.0			
	Mars - - - -	S.	4 55 18.04	23 43 47.9	0.60	8.2	15.8
	n Tauri - - -	6	5 11 11.67	21 57 11.0			
15	99 Tauri - -	6½	4 49 39.15	23 44 1.0			
	Mars - - - -	N.	4 53 55.82	23 44 45.2	0.60	8.2	15.8
	103 Tauri - -	6	4 59 54.98	24 4 57.2			
16	99 Tauri - -	6½	4 49 39.17	23 44 1.0			
	Mars - - - -	S.	4 52 31.05	23 45 35.0	0.60	8.2	15.9
	103 Tauri - -	6	4 59 55.00	24 4 57.2			
17	99 Tauri - -	6½	4 49 39.18	23 44 1.1			
	Mars - - - -	N.	4 51 3.81	23 46 17.3	0.60	8.2	16.0
	103 Tauri - -	6	4 59 55.02	24 4 57.2			
18	Mars - - - -	S.	4 49 34.30	23 46 52.0	0.60	8.2	16.0
	99 Tauri - -	6½	4 49 39.20	23 44 1.1			
	103 Tauri - -	6	4 59 55.03	24 4 57.2			
19	Mars - - - -	N.	4 48 2.73	23 47 18.7	0.60	8.2	16.0
	99 Tauri - -	6½	4 49 39.22	23 44 1.1			
	103 Tauri - -	6	4 59 55.05	24 4 57.3			
20	Mars - - - -	S.	4 46 29.24	23 47 37.3	0.61	8.3	16.0
	99 Tauri - -	6½	4 49 39.24	23 44 1.1			
	103 Tauri - -	6	4 59 55.07	24 4 57.3			
21	Mars - - - -	N.	4 44 54.03	23 47 47.8	0.61	8.3	16.0
	99 Tauri - -	6½	4 49 39.26	23 44 1.1			
	103 Tauri - -	6	4 59 55.09	24 4 57.3			
22	Mars - - - -	S.	4 43 17.36	23 47 50.1	0.61	8.3	16.1
	99 Tauri - -	6½	4 49 39.27	23 44 1.1			
	103 Tauri - -	6	4 59 55.11	N.24 4 57.3			

EPHEMERIS OF STARS TO BE OBSERVED WITH THE PLANET, NEAR THE OPPOSITION, NOVEMBER 30, 1864.

Month and Day.	Star.	Magnitude.	Apparent		Semidiameter in		Hor. Par.
			Right Ascension.	Declination.	R. A.	Dec.	
Nov. 23	Mars- - - -	N.	h m s	° ' "	° ' "	" "	" "
	99 Tauri- - -	6½	4 41 39.37	N.23 47 44.2	0.61	8.3	16.1
	103 Tauri - -	6	4 49 39.29	23 44 1.1			
			4 59 55.12	24 4 57.4			
	24 Mars- - - -	S.	4 40 0.30	23 47 30.1	0.61	8.3	16.1
	99 Tauri- - -	6½	4 49 39.30	23 44 1.1			
	103 Tauri - -	6	4 59 55.14	24 4 57.4			
	25 Mars- - - -	N.	4 38 20.41	23 47 8.0	0.61	8.3	16.0
	99 Tauri- - -	6½	4 49 39.32	23 44 1.1			
	103 Tauri - -	6	4 59 55.16	24 4 57.4			
	26 υ Tauri - - -	4½	4 18 15.89	22 30 13.9			
	Mars- - - -	S.	4 36 39.87	23 46 37.9	0.61	8.3	16.0
	99 Tauri- - -	6½	4 49 39.33	23 44 1.2			
	27 υ Tauri - - -	4½	4 18 15.90	22 30 13.9			
	Mars- - - -	N.	4 34 58.93	23 46 0.0	0.61	8.3	16.0
	99 Tauri- - -	6½	4 49 39.35	23 44 1.2			
	28 υ Tauri - - -	4½	4 18 15.92	22 30 13.9			
	Mars- - - -	S.	4 33 17.85	23 45 14.7	0.60	8.2	16.0
	99 Tauri- - -	6½	4 49 39.36	23 44 1.2			
	29 υ Tauri - - -	4½	4 18 15.93	22 30 13.9			
	Mars- - - -	N.	4 31 36.86	23 44 22.2	0.60	8.2	16.0
	99 Tauri- - -	6½	4 49 39.38	23 44 1.2			
	30 υ Tauri - - -	4½	4 18 15.94	22 30 13.9			
	Mars- - - -	S.	4 29 56.19	23 43 22.7	0.60	8.2	15.9
	99 Tauri- - -	6½	4 49 39.39	23 44 1.2			
Dec. 1	υ Tauri - - -	4½	4 18 15.95	22 30 14.0			
	Mars- - - -	N.	4 28 16.06	23 42 16.5	0.60	8.2	15.9
	τ Tauri - - -	4½	4 34 10.69	22 41 39.0			
	2 υ Tauri - - -	4½	4 18 15.96	22 30 14.0			
	Mars- - - -	S.	4 26 36.73	23 41 4.5	0.60	8.2	15.8
	τ Tauri - - -	4½	4 34 10.70	22 41 39.0			
	3 υ Tauri - - -	4½	4 18 15.97	22 30 14.0			
	Mars- - - -	N.	4 24 58.42	23 39 46.6	0.60	8.1	15.7
	τ Tauri - - -	4½	4 34 10.71	22 41 39.0			
	4 36 Tauri- - -	6½	3 56 19.34	23 43 55.4			
	Mars- - - -	S.	4 23 21.32	23 38 23.6	0.59	8.1	15.7
	τ Tauri - - -	4½	4 34 10.72	22 41 39.0			
	5 36 Tauri- - -	6½	3 56 19.35	23 43 55.4			
	Mars- - - -	N.	4 21 45.66	23 36 56.0	0.59	8.1	15.6
	τ Tauri - - -	4½	4 34 10.73	N.22 41 39.0			

EPHEMERIS OF STARS TO BE OBSERVED WITH THE PLANET,
NEAR THE OPPOSITION, NOVEMBER 30, 1864.

Month and Day.	Star.	Magnitude.	Apparent		Semidiameter in		Hor. Par.
			Right Ascension.	Declination.	R. A.	Dec.	
Dec. 6	36 Tauri - - -	6½	h m s	° ' "	"	"	"
	Mars - - - - -	S.	3 56 19.35	N. 23 43 55.4			
	τ Tauri - - -	4½	4 20 11.68	23 35 24.2	0.59	8.1	15.6
7	36 Tauri - - -	6½	4 34 10.74	22 41 39.0			
	Mars - - - - -	N.	3 56 19.36	23 43 55.4	0.59	8.1	15.5
	τ Tauri - - -	4½	4 18 39.50	23 33 48.8			
8	36 Tauri - - -	6½	4 34 10.75	22 41 39.0			
	Mars - - - - -	S.	3 56 19.37	23 43 55.5	0.59	8.0	15.4
	τ Tauri - - -	4½	4 17 9.31	23 32 10.6			
9	36 Tauri - - -	6½	4 34 10.76	22 41 39.1			
	Mars - - - - -	N.	3 56 19.37	23 43 55.5	0.59	7.9	15.3
	τ Tauri - - -	4½	4 15 41.30	23 30 29.9			
10	36 Tauri - - -	6½	4 34 10.77	22 41 39.1			
	Mars - - - - -	S.	3 56 19.38	23 43 55.5	0.58	7.9	15.2
	τ Tauri - - -	4½	4 14 15.57	23 28 47.5			
11	36 Tauri - - -	6½	4 34 10.78	22 41 39.1			
	Mars - - - - -	N.	3 56 19.38	23 43 55.5	0.57	7.8	15.1
	τ Tauri - - -	4½	4 12 52.28	23 27 3.8			
12	36 Tauri - - -	6½	4 34 10.79	22 41 39.1			
	Mars - - - - -	S.	3 56 19.38	23 43 55.5	0.57	7.8	15.0
	υ Tauri - - -	4½	4 11 31.59	23 25 19.5			
13	36 Tauri - - -	6½	4 18 16.03	22 30 14.1			
	Mars - - - - -	N.	3 56 19.39	23 43 55.6	0.57	7.7	14.9
	υ Tauri - - -	4½	4 10 13.57	23 23 35.1			
14	36 Tauri - - -	6½	4 18 16.03	22 30 14.1			
	Mars - - - - -	S.	3 56 19.39	23 43 55.6	0.56	7.7	14.8
	υ Tauri - - -	4½	4 8 58.38	23 21 51.2			
15	36 Tauri - - -	6½	4 18 16.04	22 30 14.1			
	Mars - - - - -	N.	3 56 19.39	23 43 55.6	0.56	7.7	14.7
	υ Tauri - - -	4½	4 7 46.12	23 20 8.2			
16	36 Tauri - - -	6½	4 18 16.04	22 30 14.1			
	Mars - - - - -	S.	3 56 19.39	23 43 55.6	0.55	7.6	14.6
	υ Tauri - - -	4½	4 6 36.84	23 18 26.7			
17	36 Tauri - - -	6½	4 18 16.05	22 30 14.1			
	Mars - - - - -	N.	3 56 19.39	23 43 55.6	0.55	7.5	14.5
	υ Tauri - - -	4½	4 5 30.68	23 16 47.4			
18	36 Tauri - - -	6½	4 18 16.05	22 30 14.1			
	Mars - - - - -	S.	3 56 19.39	23 43 55.6	0.54	7.5	14.4
	υ Tauri - - -	4½	4 4 27.72	23 15 10.9			
			4 18 16.06	N. 22 30 14.1			

EPHEMERIS OF STARS TO BE OBSERVED WITH THE PLANET, NEAR THE OPPOSITION, NOVEMBER 30, 1864.

Month and Day.	Star.	Magnitude.	Apparent		Semidiameter in		Hor. Par.
			Right Ascension.	Declination.	R. A.	Dec.	
Dec. 19	36 Tauri - - -	6½	h m s	° ' "	"	"	"
	Mars - - - - -	N.	3 56 19.39	N.23 43 55.6			
	62 Tauri - - -	4½	4 3 28.01	23 13 37.4	0.54	7.5	14.3
20	36 Tauri - - -	6½	4 18 16.06	22 30 14.1			
	Mars - - - - -	S.	3 56 19.39	23 43 55.7	0.53	7.4	14.2
	62 Tauri - - -	7	4 2 31.60	23 12 7.4			
21	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	N.	3 39 29.77	23 41 6.0	0.53	7.3	14.1
	62 Tauri - - -	7	4 1 38.58	23 10 41.4			
22	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	S.	3 39 29.77	23 41 6.0	0.53	7.2	13.9
	62 Tauri - - -	7	4 0 48.96	23 9 19.7			
23	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	N.	3 39 29.77	23 41 6.1	0.52	7.1	13.8
	62 Tauri - - -	7	4 0 2.80	23 8 2.8			
24	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	S.	3 39 29.77	23 41 6.2	0.52	7.1	13.7
	62 Tauri - - -	7	3 59 20.15	23 6 51.1			
25	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	N.	3 39 29.76	23 41 6.2	0.52	7.0	13.6
	62 Tauri - - -	7	3 58 41.01	23 5 44.9			
26	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	S.	3 39 29.76	23 41 6.3	0.51	6.9	13.4
	62 Tauri - - -	7	3 58 5.39	23 4 44.5			
27	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	N.	3 39 29.76	23 41 6.3	0.51	6.9	13.3
	62 Tauri - - -	7	3 57 33.36	23 3 50.2			
28	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	S.	3 39 29.75	23 41 6.3	0.50	6.8	13.1
	62 Tauri - - -	7	3 57 4.86	23 3 2.2			
29	7 Tauri - - -	3	4 15 53.67	23 59 0.3			
	Mars - - - - -	N.	3 39 29.75	23 41 6.3	0.50	6.7	13.0
	62 Tauri - - -	7	3 56 39.93	23 2 20.9			
30	7 Tauri - - -	3	4 15 53.66	23 59 0.4			
	Mars - - - - -	S.	3 39 29.74	23 41 6.3	0.49	6.7	12.9
	62 Tauri - - -	7	3 56 18.59	23 1 46.4			
31	7 Tauri - - -	3	4 15 53.66	23 59 0.4			
	Mars - - - - -	N.	3 39 29.74	23 41 6.3	0.49	6.7	12.7
	62 Tauri - - -	7	3 56 0.76	N.23 1 18.8			

MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

Day of the Month	JANUARY.				FEBRUARY.				MARCH.				APRIL.				MAY.				JUNE.				
	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m			
1	6	34	18	54	7	23	19	50	6	54	19	20	9	2	21	45	10	9	22	46	11	52	—		
2	7	16	19	40	8	21	21	3	7	51	20	28	10	30	23	12	11	20	23	50	0	20	12	48	
3	8	8	20	42	9	45	22	27	9	13	22	1	11	46	—	—	—	12	18	—	1	14	13	38	
4	9	17	21	53	11	9	23	49	10	46	23	30	0	17	12	44	0	44	13	9	2	1	14	25	
5	10	30	23	9	—	12	25	—	12	7	—	—	1	8	13	33	1	34	13	58	2	46	15	4	
6	11	44	—	—	0	55	13	22	0	38	13	5	1	54	14	15	2	18	14	40	3	25	15	44	
7	0	15	12	44	1	49	14	13	1	30	13	54	2	38	14	59	3	0	15	22	4	2	16	21	
8	1	10	13	37	2	38	15	0	2	17	14	39	3	20	15	41	3	40	16	0	4	38	16	58	
9	2	2	14	26	3	23	15	44	3	0	15	22	4	0	16	21	4	20	16	39	5	16	17	36	
10	2	51	15	15	4	7	16	28	3	44	16	5	4	40	16	59	4	59	17	20	5	54	18	16	
11	3	39	16	1	4	49	17	9	4	25	16	45	5	19	17	40	5	38	17	59	6	38	18	59	
12	4	25	16	50	5	30	17	51	5	4	17	25	6	2	18	25	6	22	18	45	7	22	19	47	
13	5	12	17	34	6	11	18	33	5	44	18	7	6	50	19	15	7	10	19	37	8	17	20	49	
14	5	57	18	19	6	58	19	23	6	28	18	53	7	47	20	22	8	7	20	43	9	21	21	51	
15	6	42	19	6	7	51	20	23	7	17	19	47	9	1	21	40	9	18	21	51	10	22	22	53	
16	7	30	19	59	9	3	21	43	8	22	21	3	10	17	22	53	10	22	22	56	11	24	23	54	
17	8	32	21	9	10	26	23	8	9	45	22	27	11	27	23	57	11	26	23	54	—	12	20	—	
18	9	46	22	25	11	47	—	—	11	9	23	46	—	12	21	—	—	12	17	—	—	0	45	13	9
19	11	4	23	43	0	23	12	51	—	12	18	—	0	42	13	1	0	38	12	59	1	34	13	56	
20	—	12	15	—	1	13	13	35	0	42	13	3	1	19	13	38	1	20	13	41	2	17	14	41	
21	0	44	13	10	1	54	14	11	1	23	13	41	1	54	14	12	2	2	14	20	3	4	15	28	
22	1	33	13	55	2	28	14	44	1	58	14	13	2	28	14	46	2	40	14	58	3	50	16	12	
23	2	14	14	33	2	58	15	14	2	28	14	43	3	3	15	21	3	19	15	39	4	35	16	57	
24	2	50	15	6	3	29	15	44	2	59	15	13	3	38	15	57	4	0	16	22	5	23	17	49	
25	3	23	15	39	3	58	16	12	3	31	15	45	4	15	16	34	4	45	17	6	6	15	18	40	
26	3	53	16	9	4	28	16	43	4	1	16	18	4	56	17	15	5	31	17	57	7	8	19	56	
27	4	24	16	39	4	59	17	15	4	35	16	53	5	38	18	3	6	24	18	54	8	7	20	37	
28	4	55	17	11	5	32	17	50	5	10	17	30	6	31	18	59	7	26	19	59	9	13	21	48	
29	5	26	17	43	6	9	18	30	5	49	18	13	7	32	20	9	8	32	21	7	10	21	22	56	
30	5	59	18	18	-	-	-	-	6	38	19	5	8	50	21	31	9	43	22	18	11	30	-	-	
31	6	37	19	0	-	-	-	-	7	38	20	15	-	-	-	-	10	49	23	20	-	-	-	-	

If the time of High Water be required, according to the *civil* mode of reckoning:

1. *For the Morning Tide* :—With the day of the month *preceding* the given date, take the time opposite thereto from the 2nd column of the month, and diminish it by 12 hours.

2. *For the Afternoon Tide* :—With the given date, take the time opposite thereto from the 1st column of the month.

MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

Day of the Month	JULY.				AUGUST.				SEPTEMBER.				OCTOBER.				NOVEMBER.				DECEMBER.			
	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m
1	0	2	12	32	1	36	13	55	2	26	14	44	2	29	14	43	3	3	15	21	3	23	15	43
2	0	58	13	24	2	15	14	34	2	59	15	13	2	57	15	13	3	38	15	56	4	3	16	24
3	1	48	14	10	2	52	15	9	3	28	15	43	3	29	15	44	4	14	16	34	4	44	17	7
4	2	31	14	52	3	25	15	40	3	57	16	14	4	1	16	17	4	52	17	14	5	30	17	56
5	3	11	15	29	3	56	16	10	4	28	16	43	4	32	16	50	5	37	18	1	6	21	18	49
6	3	46	16	2	4	27	16	42	4	59	17	15	5	9	17	29	6	30	18	58	7	17	19	48
7	4	20	16	37	4	58	17	13	5	32	17	52	5	52	18	14	7	31	20	10	8	24	21	1
8	4	54	17	11	5	28	17	46	6	12	18	35	6	42	19	11	8	51	21	31	9	36	22	14
9	5	28	17	45	6	5	18	23	7	1	19	31	7	47	20	28	10	8	22	46	10	48	23	24
10	6	4	18	23	6	45	19	7	8	6	20	49	9	13	21	56	11	20	23	49	11	53	—	—
11	6	44	19	5	7	34	20	3	9	32	22	16	10	38	23	13	—	12	16	—	0	23	12	48
12	7	27	19	52	8	40	21	21	10	58	23	35	11	45	—	—	0	41	13	7	1	16	13	40
13	8	20	20	55	9	59	22	42	—	12	6	—	0	14	12	40	1	30	13	54	2	4	14	26
14	9	30	22	4	11	22	23	57	0	35	13	3	1	3	13	26	2	17	14	38	2	47	15	9
15	10	38	23	14	—	12	26	—	1	27	13	48	1	48	14	10	3	0	15	21	3	29	15	48
16	11	48	—	—	0	55	13	21	2	11	14	34	2	32	14	55	3	42	16	2	4	9	16	26
17	0	17	12	46	1	46	14	10	2	56	15	19	3	19	15	40	4	23	16	42	4	44	17	3
18	1	12	13	38	2	35	14	58	3	41	16	2	4	1	16	22	5	3	17	25	5	22	17	43
19	2	2	14	25	3	19	15	42	4	23	16	43	4	41	17	1	5	47	18	9	6	2	18	22
20	2	51	15	15	4	2	16	23	5	4	17	25	5	23	17	46	6	31	18	54	6	42	19	4
21	3	39	16	0	4	48	17	10	5	46	18	10	6	11	18	36	7	21	19	52	7	25	19	53
22	4	22	16	46	5	32	17	54	6	35	19	1	7	2	19	33	8	28	21	1	8	23	20	58
23	5	8	17	30	6	17	18	42	7	33	20	8	8	9	20	50	9	34	22	7	9	31	22	4
24	5	55	18	18	7	7	19	34	8	51	21	32	9	28	22	4	10	38	23	12	10	36	23	10
25	6	42	19	7	8	5	20	42	10	12	22	53	10	41	23	15	11	40	—	—	11	41	—	—
26	7	35	20	5	9	26	22	6	11	28	—	—	11	43	—	—	0	6	12	28	0	12	12	36
27	8	38	21	15	10	45	23	23	0	0	12	24	0	7	12	29	0	50	13	9	0	58	13	21
28	9	53	22	31	11	59	—	—	0	44	13	5	0	48	13	7	1	28	13	48	1	44	14	6
29	11	10	23	45	0	28	12	54	1	24	13	42	1	25	13	42	2	6	14	27	2	28	14	49
30	—	12	18	—	1	16	13	36	1	57	14	12	1	58	14	15	2	46	15	4	3	10	15	32
31	0	46	13	13	1	53	14	10	-	-	-	-	2	31	14	47	-	-	-	-	3	52	16	15

Example.—Required the Mean Time of High Water at London Bridge, for the Morning and Afternoon of July 20, 1864.

1. Opposite the day *preceding*, viz. 19, and in the 2nd column, under JULY, is 14^h 25^m, which, being diminished by 12^h, gives 2^h 25^m for the Time of High Water in the Morning.

2. Opposite the given date, and in the 1st column, under JULY, is 2^h 51^m, which is the Time of High Water in the Afternoon.

TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON,
AT THE UNDERMENTIONED PORTS AND PLACES.

PLACE.	SITUATION.	Time of High Water.	PLACE.	SITUATION.	Time of High Water.
		h m			h m
Aberdeen Bar	Scotland	1 0	Chausey Islands	France	6 9
Aberdovey	Wales	8 0	Cherbourg	France	7 49
Aberystwith	Wales	7 31	Chichester Harbour	England	11 30
Achill-beg	Ireland	5 14	Christchurch Harbour	England	9 0
Agnes (St.)	Scilly Isles	4 30	Clear Cape	Ireland	4 0
Air Point	Isle of Man	11 7	Coquet Road	England	3 0
Aldborough	England	10 45	Cordouan	France	3 37
Alderney Pier	English Channel	6 46	Cork Harbour	Ireland	5 1
Amlwch Port	Anglesea	10 30	Cornwall Cape	England	4 35
Antwerp	Belgium	4 25	Cowes	Isle of Wight	10 45
Arran Isle	Scotland	11 15	Cromarty	Scotland	11 56
Arundel Bar	England	11 35	Cuckolds Point	River Thames	1 45
Ballyshannon Bar	Ireland	5 30	Cuxhaven	Germany	1 8
Balta	Shetland	9 45	Dartmouth Harbour	England	6 16
Baltimore	Ireland	4 23	Deal	England	11 15
Banff	Scotland	0 28	Dee River (Saltney)	Scotland	0 7
Bantry Harbour	Ireland	3 47	Devonport Dock Yard	England	5 43
Bardsey Island	Wales	7 40	Dielette Harbour	France	6 40
Barmouth	Wales	7 40	Dieppe	France	11 6
Barnstaple Bar	England	5 30	Dingle Bay	Ireland	3 51
Beachy Head	England	11 20	Donaghadee Pier	Ireland	11 13
Beaumaris	Wales	10 32	Donegal Bar	Ireland	5 5
Belfast	Ireland	10 43	Douglas Harbour	Isle of Man	11 12
Berwick	England	2 18	Dover Pier	England	11 12
Blakeney Harbour	England	6 30	Downing Bay	Ireland	5 25
Blyth	England	3 15	Sheephaven		
Bolt Head	England	5 45	Downs (Stream)	England	2 30
Bordeaux	France	6 50	Dublin Bar	Ireland	11 12
Boston	England	7 0	Dunbar	Scotland	2 8
Boulogne	France	11 25	Duncansby Head	Scotland	10 14
Brehat Island	France	5 51	Dundalk Bar	Ireland	10 56
Brest Harbour	France	3 47	Dundee	Scotland	2 32
Bridgewater Bar	England	6 50	Dungarvan	Ireland	5 12
Bridlington	England	4 39	Dungeness	England	10 45
Bridport	England	6 5	Dunkerque	France	0 8
Brielle	Holland	3 0	Eddystone	English Chan.	5 25
Brighton	England	11 15	Exmouth Bar	England	6 21
Bristol	England	7 21	Eyemouth	Scotland	2 15
Brouwershaven	Holland	2 15	Falmouth	England	4 57
Burntisland	Scotland	2 24	Fécamp	France	10 44
Caermarthen Bar	Wales	6 10	Flamboro' Head	England	4 30
Caernarvon Bar	Wales	9 33	Flatholm	England	6 54
Calais	France	11 49	Flushing	Holland	1 20
Caldy Island	Coast of Wales	6 0	Fowey	England	5 14
Calf of Man	St. Geo. Channel	11 17	Galloway (Mull)	Scotland	11 15
Cancalle Bay	France	6 20	Galway Bay	Ireland	4 35
Cantyre (Mull)	Scotland	10 35	Glenan Islands	France	3 12
Cardigan Bar	Wales	7 1	Goeree (West Gat.)	Holland	1 45
Carlingford Bar	Ireland	10 40	Granville	France	6 13
Chatham	England	1 2	Gravelines	France	12 0

TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON,
AT THE UNDERMENTIONED PORTS AND PLACES.

PLACE.	SITUATION.	Time of High Water.	PLACE.	SITUATION.	Time of High Water.
		h m			h m
Gravesend - -	England - -	1 10	Penzance - - -	England - -	4 30
Greenock - -	W.C.of Scotland	0 8	Peterhead - - -	Scotland - -	0 34
Guernsey Pier -	English Channel	6 48	Portland Race (Stream)	England - -	9 15
Gunfleet Sand -	River Thames	11 40	Portland (Breakwater)	England - -	7 1
Hartlepool - -	England - -	3 28	Port Patrick - -	Scotland - -	11 10
Harwich - - -	England - -	0 6	Portsmouth Dock Yd.	England - -	11 41
Hastings - - -	England - -	10 53	Ramsgate Harbour	England - -	11 44
Hâvre de Grace -	France - -	9 51	Rathlin I., Church Bay	N. C. of Irel.	7 56
Helgoland - -	German Ocean	11 33	Rye Bay - - -	England - -	11 20
Hellevoetsluis -	Holland - -	2 30	Salcombe - - -	England - -	5 50
Hollesley - - -	England - -	11 30	Saltees - - -	Ireland - -	5 40
Holyhead - - -	Wales - -	10 11	Scalloway - - -	Shetland - -	9 30
Holy Island Harb.	England - -	2 30	Scarborough - -	England - -	4 11
Honfleur Harbour	France - -	9 29	Scilly Islands (St. Mary)	England - -	4 27
Horn Point - -	Jutland - -	1 44	Selsea Bill - - -	England - -	11 45
Howth Harbour -	Ireland - -	11 9	Shannon Mouth - -	Ireland - -	3 50
Hull - - -	England - -	6 29	Sheerness Dock Yard	England - -	0 37
Humber River Ent.	England - -	5 30	Shields (North) - -	England - -	3 23
Ipswich - - -	England - -	0 35	Shorcham Harbour	England - -	11 34
Ile de Bas - -	France - -	4 49	Skerries - - -	N. C. of Irel.	6 15
Jersey (St. Helier)	English Channel	6 25	Sligo Bay, Mullaghmore	Ireland - -	5 18
Kenmare River -	Ireland - -	3 52	Southampton - -	England - -	10 30
King Road - -	Bristol Channel	6 56	Southwold - - -	England - -	10 20
Kingstown Harb.	Ireland - -	11 10	Spithead (Stream) -	England - -	9 0
Kinsale Harbour	Ireland - -	4 43	Spurn Point - - -	England - -	5 26
Kirkcudbright -	Scotland - -	11 10	St. Helens Road - -	England - -	11 0
La Hougue Harb.	France - -	8 42	St. Ives - - -	England - -	4 44
Land's End - -	England - -	4 30	St. Malo - - -	France - -	6 5
Leith Pier - -	Scotland - -	2 17	Stromness - - -	Orkneys - -	9 0
Lerwick Harbour	Shetland - -	10 30	Sunderland - - -	England - -	3 22
Lewis Islands -	Scotland - -	6 0	Swansea Bay - - -	Wales - -	6 10
Liverpool	England - -	11 23	Tay Bar - - -	Scotland - -	2 6
(St. George Pier)			Tees River Bar - -	England - -	3 45
London Bridge -	River Thames	2 7	Terschelling, West -	Holland - -	8 40
Margate Pier -	England - -	11 40	Texel, Helder Road }	Holland - -	9 0
Milford Haven Ent.	Wales - -	5 56	E. Stream - - - }		
Minehead Pier -	England - -	6 30	Torbay - - -	England - -	6 0
Montrose - - -	Scotland - -	1 25	Tralles Bay - - -	Ireland - -	4 3
Morlaix - - -	N. C. of France	4 53	Tynemouth Bar - -	England - -	3 20
Needles Point -	Isle of Wight -	9 45	Waterford Harbour	Ireland - -	6 6
Newcastle - -	England - -	4 23	Wexford Harbour -	Ireland - -	7 21
Newhaven - - -	England - -	11 51	Weymouth - - -	England - -	7 0
Newport - - -	Wales - -	7 10	Whitby - - -	England - -	3 45
Nieuport - - -	Belgium - -	0 18	Wick - - -	Scotland - -	11 22
Nore Light - -	River Thames	0 30	Wicklow - - -	Ireland - -	10 29
Orfordness - -	England - -	11 15	Wisbeach - - -	England - -	7 30
Ostend - - -	Belgium - -	0 25	Wranger Oog - - -	E. Friesland	12 0
Pembroke Dock Yd.	Wales - -	6 12	Yarmouth Roads -	England - -	9 15
Pentland Firth -	Scotland - -	11 0	Youghal - - -	Ireland - -	5 14

TABLES.

**TABLE, SHOWING THE CORRECTION REQUIRED ON ACCOUNT
OF SECOND DIFFERENCES,**

for finding the Greenwich Time corresponding to a reduced Lunar Distance.

Arguments:—Approximate Interval and Difference of Proportional Logarithms.

Interval val.		Difference of the Proportional Logarithms in the Ephemeris.																									
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
h	m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	50	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
2	40	0	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	6	6	6	6
2	30	0	1	1	2	2	2	2	3	3	3	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9
2	20	0	1	1	2	2	3	3	3	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	10	11	11
2	10	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	13	13
2	0	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10	10	11	12	13	13	14	14	14
1	50	1	1	2	2	3	4	4	5	6	6	7	7	8	8	9	10	10	11	11	12	13	14	14	15	15	15
1	40	1	1	2	3	3	4	4	5	6	7	7	8	8	9	9	10	11	11	12	13	14	14	15	16	16	16
1	30	1	1	2	3	3	4	4	5	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	16

Interval val.		Difference of the Proportional Logarithms in the Ephemeris.																									
		54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	
h	m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	50	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	7	7	
2	40	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	13	13	
2	30	9	10	10	11	11	12	12	12	13	13	13	14	14	14	14	15	15	16	16	16	17	17	17	18	18	
2	20	12	12	13	13	13	14	14	15	15	16	16	17	17	18	18	19	19	19	20	20	21	21	22	22	23	
2	10	14	14	15	15	16	16	17	17	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	
2	0	15	16	16	17	17	18	18	19	20	21	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	
1	50	16	17	17	18	18	19	19	20	21	22	22	23	24	24	25	25	26	27	27	28	28	29	30	30	31	
1	40	17	17	18	19	19	20	20	21	21	22	23	23	24	25	25	26	27	28	28	29	29	30	31	31	32	
1	30	17	18	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27	28	29	29	30	31	31	32	33	

Interval val.		Difference of the Proportional Logarithms in the Ephemeris.																	
		104	106	108	110	112	114	116	118	120	122	124	126	128	130	132	134	136	138
h	m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	50	7	7	7	7	7	7	8	8	8	8	8	8	8	8	9	9	9	9
2	40	13	13	13	14	14	14	14	15	15	15	15	15	16	16	16	16	17	17
2	30	18	18	19	19	19	20	20	20	21	21	21	22	22	22	23	23	24	24
2	20	22	23	23	24	24	25	25	25	26	26	27	27	28	28	28	29	29	30
2	10	26	26	27	27	28	29	29	29	30	30	31	31	32	32	33	33	34	34
2	0	29	29	30	30	31	31	32	33	33	34	34	35	35	36	37	37	38	38
1	50	31	31	32	32	33	34	34	35	35	36	37	37	38	38	39	40	40	41
1	40	32	33	33	34	34	35	35	36	37	38	38	39	39	40	41	41	42	43
1	30	32	33	34	34	35	35	36	36	37	38	39	39	40	40	41	42	42	43

Correction is to be added to the approximate Greenwich Time when the Proportional Logarithms in the Ephemeris are decreasing, and subtracted when they are increasing.

TABLES FOR DETERMINING THE LATITUDE BY OBSERVATIONS
OF THE POLE STAR OUT OF THE MERIDIAN.

TABLE I.

Containing the *First* Correction.*Argument*:—Sidereal Time of Observation.

Sidereal Time.	Correction.	Sidereal Time.	Sidereal Time.	Correction.	Sidereal Time.
h m	° ' " +	h m	h m	° ' " +	h m
0 0	— 1 21 11 +	12 0	6 0	— 0 25 12 +	18 0
10	1 22 12	10	10	0 21 39	10
20	1 23 4	20	20	0 18 2	20
30	1 23 46	30	30	0 14 24	30
40	1 24 19	40	40	0 10 44	40
50	1 24 43	50	50	0 7 2	50
1 0	1 24 56	13 0	7 0	— 0 3 20 +	19 0
10	1 25 0	10	10	+ 0 0 25 —	10
20	1 24 54	20	20	0 4 5	20
30	1 24 39	30	30	0 7 47	30
40	1 24 13	40	40	0 11 28	40
50	1 23 39	50	50	0 15 8	50
2 0	1 22 54	14 0	8 0	0 18 46	20 0
10	1 22 0	10	10	0 22 21	10
20	1 20 57	20	20	0 25 55	20
30	1 19 45	30	30	0 29 25	30
40	1 18 23	40	40	0 32 52	40
50	1 16 53	50	50	0 36 16	50
3 0	1 15 13	15 0	9 0	0 39 35	21 0
10	1 13 26	10	10	0 42 49	10
20	1 11 29	20	20	0 45 59	20
30	1 9 25	30	30	0 49 3	30
40	1 7 12	40	40	0 52 2	40
50	1 4 53	50	50	0 54 55	50
4 0	1 2 25	16 0	10 0	0 57 42	22 0
10	0 59 51	10	10	1 0 22	10
20	0 57 9	20	20	1 2 55	20
30	0 54 21	30	30	1 5 21	30
40	0 51 27	40	40	1 7 40	40
50	0 48 27	50	50	1 9 50	50
5 0	0 45 21	17 0	11 0	1 11 53	23 0
10	0 42 11	10	10	1 13 48	10
20	0 38 55	20	20	1 15 34	20
30	0 35 35	30	30	1 17 12	30
40	0 32 11	40	40	1 18 40	40
50	0 28 43	50	50	1 20 0	50
6 0	— 0 25 12 +	18 0	12 0	+ 1 21 11 —	24 0

TABLE II.

Containing the *Second* Correction. (*always to be added.*)*Arguments:—Sidereal Time and Altitude.*

Sidereal Time.		Altitude.									Sidereal Time.				
		° 0	° 5	° 10	° 15	° 20	° 25	° 30	° 35						
h	m	'	"	'	"	'	"	'	"	'	"	'	"	h	m
0	0	0	0	0	1	0	1	0	2	0	3	0	3	0	4
	30	0	0	0	0	0	0	0	1	0	1	0	1	0	1
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	1	0	1	0	1	0	2	0	2
	30	0	0	0	1	0	1	0	2	0	3	0	4	0	5
3	0	0	0	0	1	0	2	0	4	0	5	0	7	0	8
	30	0	0	0	2	0	4	0	6	0	8	0	10	0	13
4	0	0	0	0	3	0	5	0	8	0	11	0	14	0	17
	30	0	0	0	3	0	7	0	10	0	14	0	18	0	22
5	0	0	0	0	4	0	8	0	12	0	16	0	21	0	26
	30	0	0	0	5	0	9	0	14	0	19	0	24	0	30
6	0	0	0	0	5	0	10	0	15	0	21	0	27	0	33
	30	0	0	0	5	0	11	0	16	0	22	0	29	0	35
7	0	0	0	0	6	0	11	0	17	0	23	0	29	0	36
	30	0	0	0	6	0	11	0	17	0	23	0	29	0	36
8	0	0	0	0	5	0	11	0	16	0	22	0	28	0	35
	30	0	0	0	5	0	10	0	15	0	21	0	26	0	32
9	0	0	0	0	4	0	9	0	13	0	18	0	23	0	29
	30	0	0	0	4	0	8	0	11	0	16	0	20	0	24
10	0	0	0	0	3	0	6	0	9	0	13	0	16	0	20
	30	0	0	0	2	0	5	0	7	0	10	0	12	0	15
11	0	0	0	0	2	0	3	0	5	0	7	0	8	0	10
	30	0	0	0	1	0	2	0	3	0	4	0	5	0	6
12	0	0	0	0	0	0	0	0	1	0	2	0	3	0	3

TABLE III. (*for 1864.*)Containing the *Third* Correction. (*always to be added.*)*Arguments:—Sidereal Time and Date.*

Sidereal Time.	Jan. 1.	Feb. 1.	March 1.	April 1.	May 1.	June 1.	July 1.
h	' "	' "	' "	' "	' "	' "	' "
0	1 32	1 29	1 22	1 12	1 4	1 0	1 1
2	1 24	1 26	1 22	1 14	1 4	0 56	0 53
4	1 9	1 15	1 16	1 12	1 3	0 54	0 46
6	0 52	1 1	1 7	1 7	1 2	0 53	0 43
8	0 37	0 46	0 55	1 0	1 0	0 54	0 45
10	0 28	0 36	0 45	0 53	0 58	0 57	0 50
12	0 28	0 31	0 38	0 48	0 56	1 0	0 59
14	0 36	0 34	0 38	0 46	0 56	1 4	1 7
16	0 51	0 45	0 44	0 48	0 57	1 6	1 14
18	1 8	0 59	0 53	0 53	0 58	1 7	1 17
20	1 23	1 14	1 5	1 0	1 0	1 6	1 15
22	1 32	1 24	1 15	1 7	1 2	1 3	1 10
24	1 32	1 29	1 22	1 12	1 4	1 0	1 1

TABLE II.

Containing the *Second* Correction. (*always to be added.*)*Arguments:—Sidereal Time and Altitude.*

Sidereal Time.	Altitude.								Sidereal Time.
	35°	40°	45°	50°	55°	60°	65°	70°	
h m	' "	' "	' "	' "	' "	' "	' "	' "	h m
0 0	0 4	0 5	0 6	0 7	0 8	0 10	0 12	0 15	12 0
30	0 1	0 1	0 2	0 2	0 3	0 3	0 4	0 5	30
1 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	13 0
30	0 0	0 0	0 1	0 1	0 1	0 1	0 1	0 1	30
2 0	0 2	0 3	0 3	0 4	0 5	0 6	0 7	0 8	14 0
30	0 6	0 7	0 8	0 9	0 11	0 13	0 16	0 21	30
3 0	0 10	0 12	0 14	0 16	0 20	0 24	0 29	0 38	15 0
30	0 15	0 18	0 21	0 25	0 30	0 36	0 45	0 58	30
4 0	0 20	0 24	0 29	0 35	0 41	0 50	1 2	1 20	16 0
30	0 26	0 31	0 37	0 44	0 53	1 5	1 20	1 42	30
5 0	0 32	0 38	0 45	0 54	1 4	1 18	1 37	2 4	17 0
30	0 36	0 44	0 52	1 2	1 14	1 30	1 52	2 23	30
6 0	0 40	0 48	0 58	1 9	1 22	1 40	2 3	2 38	18 0
30	0 43	0 51	1 1	1 13	1 27	1 46	2 11	2 48	30
7 0	0 44	0 53	1 3	1 15	1 30	1 49	2 15	2 53	19 0
30	0 44	0 52	1 3	1 15	1 29	1 48	2 14	2 52	30
8 0	0 42	0 50	1 0	1 11	1 26	1 44	2 9	2 45	20 0
30	0 39	0 47	0 56	1 6	1 19	1 36	1 59	2 32	30
9 0	0 35	0 41	0 49	0 59	1 11	1 26	1 46	2 16	21 0
30	0 29	0 35	0 42	0 50	1 0	1 13	1 30	1 56	30
10 0	0 24	0 29	0 34	0 41	0 48	0 59	1 13	1 33	22 0
30	0 18	0 21	0 25	0 30	0 36	0 44	0 54	1 9	30
11 0	0 13	0 15	0 18	0 21	0 26	0 31	0 39	0 49	23 0
30	0 8	0 9	0 11	0 13	0 16	0 19	0 24	0 30	30
12 0	0 4	0 5	0 6	0 7	0 8	0 10	0 12	0 15	24 0

TABLE III. (*for 1864.*)Containing the *Third* Correction. (*always to be added.*)*Arguments:—Sidereal Time and Date.*

Sidereal Time.	July 1.	Aug. 1.	Sept. 1.	Oct. 1.	Nov. 1.	Dec. 1.	Dec. 31.
h	' "	' "	' "	' "	' "	' "	' "
0	1 1	1 9	1 18	1 29	1 40	1 48	1 51
2	0 53	0 55	1 0	1 9	1 21	1 31	1 38
4	0 46	0 43	0 43	0 47	0 56	1 6	1 15
6	0 43	0 35	0 30	0 28	0 32	0 39	0 48
8	0 45	0 34	0 25	0 18	0 16	0 18	0 25
10	0 50	0 40	0 29	0 19	0 11	0 8	0 10
12	0 59	0 51	0 42	0 31	0 20	0 12	0 9
14	1 7	1 5	1 0	0 51	0 39	0 29	0 22
16	1 14	1 17	1 17	1 13	1 4	0 54	0 45
18	1 17	1 25	1 30	1 32	1 28	1 21	1 12
20	1 15	1 26	1 35	1 42	1 44	1 42	1 35
22	1 10	1 20	1 31	1 41	1 49	1 52	1 50
24	1 1	1 9	1 18	1 29	1 40	1 48	1 51

TABLE

For converting INTERVALS of MEAN SOLAR Time into Equivalent INTERVALS of SIDEREAL Time.

HOURS.				MINUTES.				SECONDS.					
Hours of Mean Time.	Equivalents in Sidereal Time.			Minutes of Mean Time.	Equivalents in Sidereal Time.		Minutes of Mean Time.	Equivalents in Sidereal Time.		Seconds of Mean Time.	Equivalents in Sidereal Time.		
	h	m	s		m	s		m	s		s		s
1	1	0	9.8565	1	1	0.1643	31	31	5.0925	1	1.0027	31	31.0849
2	2	0	19.7130	2	2	0.3286	32	32	5.2568	2	2.0055	32	32.0876
3	3	0	29.5694	3	3	0.4928	33	33	5.4211	3	3.0082	33	33.0904
4	4	0	39.4259	4	4	0.6571	34	34	5.5853	4	4.0110	34	34.0931
5	5	0	49.2824	5	5	0.8214	35	35	5.7496	5	5.0137	35	35.0958
6	6	0	59.1388	6	6	0.9857	36	36	5.9139	6	6.0164	36	36.0986
7	7	1	8.9953	7	7	1.1499	37	37	6.0782	7	7.0192	37	37.1013
8	8	1	18.8518	8	8	1.3142	38	38	6.2424	8	8.0219	38	38.1040
9	9	1	28.7083	9	9	1.4785	39	39	6.4067	9	9.0246	39	39.1068
10	10	1	38.5647	10	10	1.6428	40	40	6.5710	10	10.0274	40	40.1095
11	11	1	48.4212	11	11	1.8070	41	41	6.7353	11	11.0301	41	41.1123
12	12	1	58.2777	12	12	1.9713	42	42	6.8995	12	12.0329	42	42.1150
13	13	2	8.1342	13	13	2.1356	43	43	7.0638	13	13.0356	43	43.1177
14	14	2	17.9906	14	14	2.2998	44	44	7.2281	14	14.0383	44	44.1205
15	15	2	27.8471	15	15	2.4641	45	45	7.3924	15	15.0411	45	45.1233
16	16	2	37.7036	16	16	2.6284	46	46	7.5566	16	16.0438	46	46.1259
17	17	2	47.5600	17	17	2.7927	47	47	7.7209	17	17.0465	47	47.1287
18	18	2	57.4165	18	18	2.9569	48	48	7.8852	18	18.0493	48	48.1314
19	19	3	7.2730	19	19	3.1212	49	49	8.0495	19	19.0520	49	49.1342
20	20	3	17.1295	20	20	3.2855	50	50	8.2137	20	20.0548	50	50.1369
21	21	3	26.9859	21	21	3.4498	51	51	8.3780	21	21.0575	51	51.1396
22	22	3	36.8424	22	22	3.6140	52	52	8.5423	22	22.0602	52	52.1424
23	23	3	46.6989	23	23	3.7783	53	53	8.7066	23	23.0630	53	53.1451
24	24	3	56.5554	24	24	3.9426	54	54	8.8708	24	24.0657	54	54.1479
				25	25	4.1069	55	55	9.0351	25	25.0685	55	55.1506
				26	26	4.2711	56	56	9.1994	26	26.0712	56	56.1533
				27	27	4.4354	57	57	9.3637	27	27.0739	57	57.1561
				28	28	4.5997	58	58	9.5279	28	28.0767	58	58.1588
				29	29	4.7640	59	59	9.6922	29	29.0794	59	59.1615
				30	30	4.9282	60	60	9.8565	30	30.0821	60	60.1643

TABLE
For converting INTERVALS of MEAN SOLAR Time into Equivalent INTERVALS
of SIDEREAL Time.

FRACTIONS OF A SECOND.

Seconds of Mean Time.	Equivalents in Sidereal Time.	Seconds of Mean Time.	Equivalents in Sidereal Time.	Seconds of Mean Time.	Equivalents in Sidereal Time.
0.01	0.01003	0.34	0.34093	0.67	0.67183
0.02	0.02006	0.35	0.35096	0.68	0.68186
0.03	0.03008	0.36	0.36099	0.69	0.69189
0.04	0.04011	0.37	0.37101	0.70	0.70192
0.05	0.05014	0.38	0.38104	0.71	0.71194
0.06	0.06016	0.39	0.39107	0.72	0.72197
0.07	0.07019	0.40	0.40110	0.73	0.73200
0.08	0.08022	0.41	0.41112	0.74	0.74203
0.09	0.09025	0.42	0.42115	0.75	0.75205
0.10	0.10027	0.43	0.43118	0.76	0.76208
0.11	0.11030	0.44	0.44120	0.77	0.77211
0.12	0.12033	0.45	0.45123	0.78	0.78214
0.13	0.13036	0.46	0.46126	0.79	0.79216
0.14	0.14038	0.47	0.47129	0.80	0.80219
0.15	0.15041	0.48	0.48131	0.81	0.81222
0.16	0.16044	0.49	0.49134	0.82	0.82225
0.17	0.17047	0.50	0.50137	0.83	0.83227
0.18	0.18049	0.51	0.51140	0.84	0.84230
0.19	0.19052	0.52	0.52142	0.85	0.85233
0.20	0.20055	0.53	0.53145	0.86	0.86235
0.21	0.21057	0.54	0.54148	0.87	0.87238
0.22	0.22060	0.55	0.55151	0.88	0.88241
0.23	0.23063	0.56	0.56153	0.89	0.89244
0.24	0.24066	0.57	0.57156	0.90	0.90246
0.25	0.25068	0.58	0.58159	0.91	0.91249
0.26	0.26071	0.59	0.59162	0.92	0.92252
0.27	0.27074	0.60	0.60164	0.93	0.93255
0.28	0.28077	0.61	0.61167	0.94	0.94257
0.29	0.29079	0.62	0.62170	0.95	0.95260
0.30	0.30082	0.63	0.63173	0.96	0.96263
0.31	0.31085	0.64	0.64175	0.97	0.97266
0.32	0.32088	0.65	0.65178	0.98	0.98268
0.33	0.33090	0.66	0.66181	0.99	0.99271

This TABLE is useful for the conversion of MEAN SOLAR Time into SIDEREAL Time.
Sidereal Time required = Sidereal Time at the preceding Mean Noon + the Equivalent to the given Mean Time.

EXAMPLE.—To convert 2^h 23^m 25^s.62 Mean Time at Greenwich, Jan. 7, 1864, into Sidereal Time.

Sidereal Time at the preceding Mean Noon, viz. January 7 ----- 19 5 16.25

For Mean Intervals. { 2^h 0^m 0^s } The Table gives the Equivalent { 2 0 19.713

{ 23 0 0 } { 22 3.614

{ 25 0 0 } { 25.069

{ 0.62 } { 0.622

The Sum is the Sidereal Time required - - 21 28 5.27

TABLE
For converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS of
MEAN SOLAR Time.

HOURS.			MINUTES.			SECONDS.					
Hours of Sidereal Time.	Equivalents in Mean Time.		Minutes of Sidereal Time.	Equivalents in Mean Time.		Minutes of Sidereal Time.	Equivalents in Mean Time.		Seconds of Sidereal Time.	Equivalents in Mean Time.	
	h	m s		m s		m s		s		s	
1	0	59 50' 1704	1	0 59' 8362	31	30 54' 9214	1	0' 9973	31	30' 9154	
2	1	59 40' 3409	2	1 59' 6723	32	31 54' 7576	2	1' 9945	32	31' 9126	
3	2	59 30' 5113	3	2 59' 5085	33	32 54' 5937	3	2' 9918	33	32' 9099	
4	3	59 20' 6818	4	3 59' 3447	34	33 54' 4299	4	3' 9891	34	33' 9072	
5	4	59 10' 8522	5	4 59' 1809	35	34 54' 2661	5	4' 9864	35	34' 9045	
6	5	59 1' 0226	6	5 59' 0170	36	35 54' 1023	6	5' 9836	36	35' 9017	
7	6	58 51' 1931	7	6 58' 8532	37	36 53' 9384	7	6' 9809	37	36' 8990	
8	7	58 41' 3635	8	7 58' 6894	38	37 53' 7746	8	7' 9782	38	37' 8963	
9	8	58 31' 5340	9	8 58' 5256	39	38 53' 6108	9	8' 9754	39	38' 8935	
10	9	58 21' 7044	10	9 58' 3617	40	39 53' 4470	10	9' 9727	40	39' 8908	
11	10	58 11' 8748	11	10 58' 1979	41	40 53' 2831	11	10' 9700	41	40' 8881	
12	11	58 2' 0453	12	11 58' 0341	42	41 53' 1193	12	11' 9672	42	41' 8853	
13	12	57 52' 2157	13	12 57' 8703	43	42 52' 9555	13	12' 9645	43	42' 8826	
14	13	57 42' 3862	14	13 57' 7064	44	43 52' 7917	14	13' 9618	44	43' 8799	
15	14	57 32' 5566	15	14 57' 5426	45	44 52' 6278	15	14' 9591	45	44' 8772	
16	15	57 22' 7270	16	15 57' 3788	46	45 52' 4640	16	15' 9563	46	45' 8744	
17	16	57 12' 8975	17	16 57' 2150	47	46 52' 3002	17	16' 9536	47	46' 8717	
18	17	57 3' 0679	18	17 57' 0511	48	47 52' 1364	18	17' 9509	48	47' 8690	
19	18	56 53' 2384	19	18 56' 8873	49	48 51' 9725	19	18' 9481	49	48' 8662	
20	19	56 43' 4088	20	19 56' 7235	50	49 51' 8087	20	19' 9454	50	49' 8635	
21	20	56 33' 5792	21	20 56' 5597	51	50 51' 6449	21	20' 9427	51	50' 8608	
22	21	56 23' 7497	22	21 56' 3958	52	51 51' 4810	22	21' 9399	52	51' 8580	
23	22	56 13' 9201	23	22 56' 2320	53	52 51' 3172	23	22' 9372	53	52' 8553	
24	23	56 4' 0906	24	23 56' 0682	54	53 51' 1534	24	23' 9345	54	53' 8526	
			25	24 55' 9044	55	54 50' 9896	25	24' 9318	55	54' 8499	
			26	25 55' 7405	56	55 50' 8257	26	25' 9290	56	55' 8471	
			27	26 55' 5767	57	56 50' 6619	27	26' 9263	57	56' 8444	
			28	27 55' 4129	58	57' 50' 4981	28	27' 9236	58	57' 8417	
			29	28 55' 2490	59	58 50' 3343	29	28' 9208	59	58' 8389	
			30	29 55' 0852	60	59 50' 1704	30	29' 9181	60	59' 8362	

TABLE

For converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS of
MEAN Solar Time.

FRACTIONS OF A SECOND.

Seconds of Sidereal Time.	Equivalents in Mean Time.	Seconds of Sidereal Time.	Equivalents in Mean Time.	Seconds of Sidereal Time.	Equivalents in Mean Time.
0.01	0.00997	0.34	0.33907	0.67	0.66817
0.02	0.01995	0.35	0.34904	0.68	0.67814
0.03	0.02992	0.36	0.35902	0.69	0.68812
0.04	0.03989	0.37	0.36899	0.70	0.69809
0.05	0.04986	0.38	0.37896	0.71	0.70806
0.06	0.05984	0.39	0.38894	0.72	0.71803
0.07	0.06981	0.40	0.39891	0.73	0.72801
0.08	0.07978	0.41	0.40888	0.74	0.73798
0.09	0.08975	0.42	0.41885	0.75	0.74795
0.10	0.09973	0.43	0.42883	0.76	0.75793
0.11	0.10970	0.44	0.43880	0.77	0.76790
0.12	0.11967	0.45	0.44877	0.78	0.77787
0.13	0.12965	0.46	0.45874	0.79	0.78784
0.14	0.13962	0.47	0.46872	0.80	0.79782
0.15	0.14959	0.48	0.47869	0.81	0.80779
0.16	0.15956	0.49	0.48866	0.82	0.81776
0.17	0.16954	0.50	0.49864	0.83	0.82773
0.18	0.17951	0.51	0.50861	0.84	0.83771
0.19	0.18948	0.52	0.51858	0.85	0.84768
0.20	0.19945	0.53	0.52855	0.86	0.85765
0.21	0.20943	0.54	0.53853	0.87	0.86762
0.22	0.21940	0.55	0.54850	0.88	0.87760
0.23	0.22937	0.56	0.55847	0.89	0.88757
0.24	0.23934	0.57	0.56844	0.90	0.89754
0.25	0.24932	0.58	0.57842	0.91	0.90752
0.26	0.25929	0.59	0.58839	0.92	0.91749
0.27	0.26926	0.60	0.59836	0.93	0.92746
0.28	0.27924	0.61	0.60833	0.94	0.93743
0.29	0.28921	0.62	0.61831	0.95	0.94741
0.30	0.29918	0.63	0.62828	0.96	0.95738
0.31	0.30915	0.64	0.63825	0.97	0.96735
0.32	0.31913	0.65	0.64823	0.98	0.97732
0.33	0.32910	0.66	0.65820	0.99	0.98730

This TABLE is useful for the conversion of SIDEREAL into MEAN Solar Time.
Mean Solar Time required = Mean Time at the preceding Sidereal Noon + the Equivalent to the given Sidereal Time.

EXAMPLE.—To convert $21^{\text{h}} 28^{\text{m}} 5^{\text{s}}.27$ Sidereal Time at Greenwich, Jan. 7, 1864, into Mean Time.

Mean Time at the preceding Sidereal Noon, viz. -----	January 6	4	57	51.38
For Sidereal Intervals.	21 ^h	0 ^m	0 ^s	20 56 33.579
	28	0	27	55.413
	5			4.986
	0.27			.269

The Sum is the Mean Time required, Jan. 7 - 2 22 25.62

LATITUDES AND LONGITUDES OF PUBLIC OBSERVATORIES.

. The Longitudes are reckoned from the Meridian of Greenwich.

ALBANY, U. S. - - -	(Dudley Observatory.)	
	Lat. $42^{\circ} 39' 49'' \cdot 55$	} <i>Brünnow's Astron. Notices</i> , vol. i. pages 139 and 160.
	Long. $4^h 54^m 59^s \cdot 52$	
ALTONA - - - - -	Lat. $53^{\circ} 32' 45'' \cdot 3$ N.	} <i>Gauss on the Latitudes of Göttin- gen and Altona</i> , page 71. (Göttingen, 1828.)
	Long. $0^h 39^m 46^s \cdot 14$ E.	
		<i>Expédition Chronométrique exécutée entre Altona et Greenwich, &c.</i> (St. Petersburg, 1845.)
ANN-ARBOR - - - -	(Michigan.)	
	Lat. $42^{\circ} 16' 48''$ N.	} <i>Astronomical Journal</i> , vol. v. page 112.
	Long. $5^h 35^m 24^s$ W.	
ARMAGH - - - - -	Lat. $54^{\circ} 21' 12'' \cdot 7$ N.	} Communicated by the Rev. Dr. Robinson.
	Long. $0^h 26^m 35^s \cdot 5$ W.	
ATHENS - - - - -	Lat. $37^{\circ} 58' 20''$ N.	} <i>Ast. Nach.</i> vol. xxxiii. page 197. <i>Ergänzungs - Heft zu den Ast. Nach.</i> 1849, page 151.
	Long. $1^h 34^m 55^s \cdot 7$ E.	
BERLIN - - - - -	Lat. $52^{\circ} 30' 16'' \cdot 7$ N.	} <i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
	Long. $0^h 53^m 35^s \cdot 5$ E.	
BILK - - - - -	Lat. $51^{\circ} 12' 25''$ N.	} <i>Ast. Nach.</i> vol. xxvii. page 300.
	Long. $0^h 27^m 5^s \cdot 5$ E.	
BONN - - - - -	Lat. $50^{\circ} 44' 9'' \cdot 1$ N.	} <i>Ast. Nach.</i> vol. xviii. page 135.
	Long. $0^h 28^m 27^s \cdot 0$ E.	
BRESLAU - - - - -	Lat. $51^{\circ} 6' 56'' \cdot 0$ N.	} <i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
	Long. $1^h 8^m 10^s \cdot 0$ E.	
BRUSSELS - - - - -	Lat. $50^{\circ} 51' 10'' \cdot 7$ N.	} <i>Annuaire de l'Observatoire de Bruxelles, pour l'An 1837</i> , pages 264 and 265.
	Long. $0^h 17^m 28^s \cdot 90$ E.	
		Communicated by G. B. Airy, Esq.
BUDA - - - - -	(Ofen.)	
	Lat. $47^{\circ} 29' 12'' \cdot 2$ N.	} <i>Mem. Ast. Soc.</i> vol. i. page 280. <i>Zach's Correspond. Astron.</i> vol. vii. page 263.
	Long. $1^h 16^m 12^s \cdot 7$ E.	
CAMBRIDGE - - - -	Lat. $52^{\circ} 12' 51'' \cdot 6$ N.	} <i>Cambridge Observations</i> , 1838. <i>Camb. Phil. Trans.</i> vol. ix. partiv.
	Long. $0^h 0^m 22^s \cdot 75$ E.	
CAMBRIDGE, U. S. - -	Lat. $42^{\circ} 22' 49''$ N.	} <i>Monthly Notices of the Royal Ast. Soc.</i> vol. vii. page 157.
	Long. $4^h 44^m 32^s$ W.	

LATITUDES AND LONGITUDES OF PUBLIC OBSERVATORIES.

CAPE OF GOOD HOPE -	Lat. $33^{\circ} 56' 3''$ S.	<i>Mem. Roy. Ast. Soc.</i> vol. vi. page 130.
	Long. $1^{\text{h}} 13^{\text{m}} 55^{\text{s}} \cdot 0$ E.	Communicated by Mr. Henderson.
CHRISTIANIA - - -	Lat. $59^{\circ} 54' 42'' \cdot 4$ N.	<i>Ast. Nach.</i> vol. xii. page 283.
	Long. $0^{\text{h}} 42^{\text{m}} 53^{\text{s}} \cdot 9$ E.	<i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
COPENHAGEN - - -	(University.)	
	Lat. $55^{\circ} 40' 53'' \cdot 0$ N.	<i>Ast. Nach.</i> vol. v. page 366.
	Long. $0^{\text{h}} 50^{\text{m}} 19^{\text{s}} \cdot 8$ E.	<i>Ast. Nach.</i> vol. xix. page 120.
CRACOW - - - -	Lat. $50^{\circ} 3' 50'' \cdot 0$ N.	<i>Ast. Nach.</i> vol. xvi. page 256.
	Long. $1^{\text{h}} 19^{\text{m}} 51^{\text{s}} \cdot 1$ E.	<i>Ast. Nach.</i> vol. xvi. page 352 ; and vol. xviii. page 392.
DORPAT - - - -	Lat. $58^{\circ} 22' 47'' \cdot 1$ N.	<i>Struve's Astronom. Observations</i> , vol. vi. page 60.
	Long. $1^{\text{h}} 46^{\text{m}} 53^{\text{s}} \cdot 56$ E.	Communicated by Mr. Struve to the Astronomer Royal.
DUBLIN - - - -	Lat. $53^{\circ} 23' 13''$ N.	} <i>Ast. Nach.</i> vol. x. page 274.
	Long. $0^{\text{h}} 25^{\text{m}} 22^{\text{s}}$ W.	
DURHAM - - - -	Lat. $54^{\circ} 46' 6'' \cdot 2$ N.	} Communicated by Professor Chevallier.
	Long. $0^{\text{h}} 6^{\text{m}} 19^{\text{s}} \cdot 75$ W.	
EDINBURGH - - -	Lat. $55^{\circ} 57' 23'' \cdot 2$ N.	<i>Ast. Soc. Not.</i> vol. iii. page 201.
	Long. $0^{\text{h}} 12^{\text{m}} 43^{\text{s}} \cdot 6$ W.	<i>Mem. Ast. Soc.</i> vol. iv. page 568.
FLORENCE - - - -	Lat. $43^{\circ} 46' 41'' \cdot 4$ N.	} <i>Zach's Correspondance Astronomique</i> , vol. i. pages 1 to 14.
	Long. $0^{\text{h}} 45^{\text{m}} 3^{\text{s}} \cdot 6$ E.	
GENEVA - - - -	Lat. $46^{\circ} 11' 59'' \cdot 4$ N.	<i>Mémoire sur une nouvelle détermination sur la Latitude de Genève.</i> By M. Gautier. (Genève, 1830.)
	Long. $0^{\text{h}} 24^{\text{m}} 37^{\text{s}} \cdot 7$ E.	<i>Ast. Nach.</i> vol. xx. page 7.
GEORGETOWN COLLEGE, D.C. (U.S.)	Lat. $38^{\circ} 54' 26'' \cdot 1$ N.	<i>Annals of the Astronomical Observatory of Georgetown College</i> , D.C. No. I. p. 215.
	Long. $5^{\text{h}} 8^{\text{m}} 18^{\text{s}} \cdot 15$ W.	<i>Do. Do.</i> p. 186.
GOTHA - - - -	(Seeberg.)	
	Lat. $50^{\circ} 56' 5''$ N.	<i>Gauss on the Latitudes of Göttingen and Altona</i> , page 80.
	Long. $0^{\text{h}} 42^{\text{m}} 56^{\text{s}} \cdot 4$ E.	<i>Bessel's Tabulæ Regiomontanae</i> , page 2.

LATITUDES AND LONGITUDES OF PUBLIC OBSERVATORIES.

GÖTTINGEN - - -	Lat. $51^{\circ} 31' 48''$ N.	<i>Gauss on the Latitudes of Göttingen and Altona</i> , page 71.
	Long. $0^h 39^m 46^s \cdot 5$ E.	<i>Bessel's Tabulæ Regiomontane</i> , page 2.
GREENWICH - - -	Lat. $51^{\circ} 28' 38'' \cdot 0$ N.	Communicated by G. B. Airy, Esq.
	Long. $0^h 0^m 0^s$	
HAMBURGH - - -	Lat. $53^{\circ} 33' 5'' \cdot 0$ N.	<i>Ast. Nach.</i> vol. vii. page 379.
	Long. $0^h 39^m 54^s \cdot 1$ E.	<i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
KAZAN - - - -	Lat. $55^{\circ} 47' 23'' \cdot 1$ N.	<i>Ast. Nach.</i> vol. xxviii. page 47.
	Long. $3^h 16^m 26^s \cdot 3$ E.	<i>Conn. des Temps</i> , 1855, p. 376.
KÖNIGSBERG - - -	Lat. $54^{\circ} 42' 50'' \cdot 7$ N.	<i>Ast. Nach.</i> vol. xxix. p. 72.
	Long. $1^h 22^m 0^s \cdot 5$ E.	<i>Bessel's Tab. Regiomontane</i> , p. 2.
KREMSMUNSTER - -	Lat. $48^{\circ} 3' 23'' \cdot 8$ N.	<i>Ast. Nach.</i> vol. xxxvii. page 271.
	Long. $0^h 56^m 32^s \cdot 8$ E.	<i>Ast. Nach.</i> vol. xxxvii. page 269.
LEIPSIK - - - -	Lat. $51^{\circ} 20' 20'' \cdot 1$ N.	<i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
	Long. $0^h 49^m 28^s \cdot 5$ E.	
LEYDEN - - - -	Lat. $52^{\circ} 9' 28'' \cdot 2$ N.	<i>Ast. Nach.</i> vol. xvii. page 100.
	Long. $0^h 17^m 57^s \cdot 5$ E.	
LIVERPOOL - - -	Lat. $53^{\circ} 24' 47'' \cdot 8$ N.	Communicated by J. Hartnup, Esq.
	Long. $0^h 12^m 0^s \cdot 11$ W.	_____ G. B. Airy, Esq.
MADRAS - - - -	Lat. $13^{\circ} 4' 8'' \cdot 1$ N.	Communicated by Captain W. S. Jacob.
	Long. $5^h 20^m 57^s \cdot 3$ E.	
MANHEIM - - - -	Lat. $49^{\circ} 29' 14''$ N.	<i>Zach's Correspond. Astron.</i> vol. i. page 193.
	Long. $0^h 33^m 51^s \cdot 4$ E.	<i>Ast. Nach.</i> vol. ii. page 398.
MARBURG - - - -	Lat. $50^{\circ} 48' 46'' \cdot 9$ N.	<i>Ast. Nach.</i> vol. xx. page 27.
	Long. $0^h 35^m 5^s \cdot 6$ E.	
MARSEILLES - - -	Lat. $43^{\circ} 17' 50'' \cdot 1$ N.	<i>Zach's Attraction des Montagnes</i> , vol. ii. page 591.
	Long. $0^h 21^m 29^s \cdot 0$ E.	<i>Ast. Nach.</i> vol. iv. page 36.
MILAN - - - -	(Brera.)	
	Lat. $45^{\circ} 28' 1''$ N.	<i>Zach's Correspond. Astron.</i> vol. v. page 300.
	Long. $0^h 36^m 47^s \cdot 2$ E.	<i>Ast. Nach.</i> vol. ix. page 312.
MODENA - - - -	Lat. $44^{\circ} 38' 53''$ N.	<i>Effem. Astron. di Milano</i> for 1829, pages 94 and 60.
	Long. $0^h 43^m 43^s \cdot 2$ E.	

LATITUDES AND LONGITUDES OF PUBLIC OBSERVATORIES.

MOSCOW - - - -	Lat. $55^{\circ} 45' 19''.8$ N. Long. $2^h 30^m 16''.96$ E. }	<i>Ast. Nach.</i> vol. xxvii. page 215.
MUNICH - - - -	(Bogenhausen.) Lat. $48^{\circ} 8' 45''$ N. Long. $0^h 46^m 26''.5$ E. }	<i>Ast. Nach.</i> vol. i. page 221. <i>Ast. Nach.</i> vol. viii. page 148.
NAPLES - - - -	(Capo di Monte.) Lat. $40^{\circ} 51' 46''.6$ N. Long. $0^h 56^m 58''.86$ E. }	<i>Ast. Nach.</i> vol. v. page 294. Communicated by Professor Ragona.
NICOLAEFF - - - -	Lat. $46^{\circ} 58' 20''.6$ N. Long. $2^h 7^m 55''.1$ E. }	<i>Ast. Nach.</i> vol. vii. page 261. <i>Ast. Nach.</i> vol. vii. page 306.
OXFORD - - - -	Lat. $51^{\circ} 45' 36''.0$ N. Long. $0^h 5^m 2''.6$ W. }	Communicated by M. J. Johnson, Esq.
PADUA - - - -	Lat. $45^{\circ} 24' 2''$ N. Long. $0^h 47^m 29''.2$ E. }	<i>Ast. Nach.</i> vol. v. page 411. <i>Ast. Nach.</i> vol. iv. page 347.
PALERMO - - - -	Lat. $38^{\circ} 6' 44''$ N. Long. $0^h 53^m 24''.17$ E. }	<i>Cacciatore</i> , in Books 7 and 8 of <i>Palermo Observations</i> . Communicated by Professor Ragona.
PARIS - - - -	Lat. $48^{\circ} 50' 13''$ N. Long. $0^h 9^m 20''.63$ E. }	<i>Conn. des Temps</i> , 1853, page 353. Communicated by G. B. Airy, Esq.
PETERSBURG - - - -	(Academy of Sciences.) Lat. $59^{\circ} 56' 29''.7$ N. Long. $2^h 1^m 13''.5$ E. }	<i>Description de l'Observatoire Astron. Central de Poulkova</i> , p. 292.
PORTSMOUTH - - - -	Lat. $50^{\circ} 48' 3''$ N. Long. $0^h 4^m 23''.9$ W. }	<i>Requisite Tables</i> , 3rd edit. (from Trig. Survey.)
PRAGUE - - - -	Lat. $50^{\circ} 5' 18''.5$ N. Long. $0^h 57^m 41''.9$ E. }	<i>Ast. Nach.</i> vol. viii. page 198. <i>Ast. Nach.</i> vol. iii. page 264.
PULKOWA - - - -	Lat. $59^{\circ} 46' 18''.7$ N. Long. $2^h 1^m 18''.66$ E. }	<i>Description de l'Observatoire Astron. Central de Poulkova</i> , p. 290.
QUEBEC - - - -	(Observatory.) Lat. $46^{\circ} 48' 30''$ N. Long. $4^h 44^m 49''.02$ W. }	Communicated by Lieutenant Ashe, R. N.
ROME - - - -	(Roman College.) Lat. $41^{\circ} 53' 52''.2$ N. Long. $0^h 49^m 54''.7$ E. }	<i>Mem. dell'Osserv. dell'Università Gregoriana del Collegio Romano</i> , 1851, page 17.

LATITUDES AND LONGITUDES OF PUBLIC OBSERVATORIES.

ST. FERNANDO, near CADIZ - - - - }	Lat. $36^{\circ} 27' 45''$ N. Long. $0^h 24^m 49^s.1$ W.	<i>Zach's Corresp. Astron.</i> vol. xiv. pages 240-243. <i>Ast. Nach.</i> vol. ix. page 358.
SANTIAGO DE CHILE - (National Observatory.)	Lat. $33^{\circ} 26' 24''.8$ S. Long. $4^h 42^m 18^s.9$ W.	<i>Astron. Journal</i> , vol. iii. p. 55. " " vol. ii. p. 118.
STOCKHOLM - - - -	Lat. $59^{\circ} 20' 31''.0$ N. Long. $1^h 12^m 14^s.8$ E.	<i>Conn. des Temps</i> , 1840, page 344. <i>Ast. Nach.</i> vol. xi. page 408.
TURIN - - - - - (New Observatory.)	Lat. $45^{\circ} 4' 6''$ N. Long. $0^h 30^m 48^s.4$ E.	} Communicated by M. Plans to Captain B. Hall, R.N.
UPSALA - - - - - (New Observatory.)	Lat. $59^{\circ} 51' 31''.5$ N. Long. $1^h 10^m 30^s$ E.	
VENICE - - - - -	Lat. $45^{\circ} 25' 49''.5$ N. Long. $0^h 49^m 25^s.4$ E.	} <i>Berliner Astron. Jahrbuch</i> , 1852, page 290.
VIENNA - - - - -	Lat. $48^{\circ} 12' 35''$ N. Long. $1^h 5^m 31^s.9$ E.	
WARSAW - - - - -	Lat. $52^{\circ} 13' 5''.0$ N. Long. $1^h 24^m 8^s.5$ E.	} <i>Additions to Conn. des Temps</i> , 1846, pages 30, 31.
WASHINGTON - - - (National Observatory.)	Lat. $38^{\circ} 53' 38''.6$ N. Long. $5^h 8^m 12^s.0$ W.	
WILNA - - - - -	Lat. $54^{\circ} 41' 0''$ N. Long. $1^h 41^m 11^s.9$ E.	<i>Ast. Nach.</i> vol. iv. page 562. <i>Ast. Nach.</i> vol. viii. page 96.

LATITUDES AND LONGITUDES OF PRIVATE OBSERVATORIES.

BIRR CASTLE - - -	(The Earl of Rosse.)			
	Lat. $53^{\circ} 5' 47''$	N. }	Communicated by the Earl of	
	Long. $0^h 31^m 40^s \cdot 9$	W. }	Rosse.	
BRADSTONES - - -	(W. Lassell, Esq.)			
(LIVERPOOL.)	Lat. $53^{\circ} 25' 28''$	N. }	Communicated by W. Lassell,	
	Long. $0^h 11^m 38^s \cdot 7$	W. }	Esq.	
CRANFORD - - -	(Warren De la Rue, Esq.)			
	Lat. $51^{\circ} 28' 57'' \cdot 8$	N. }	Communicated by Warren	
	Long. $0^h 1^m 37^s \cdot 53$	W. }	De la Rue, Esq.	
HADDENHAM - - -	(Rev. W. R. Dawes.)			
(BUCKS.)	Lat. $51^{\circ} 45' 54''$	N. }	Communicated by the Rev.	
	Long. $0^h 3^m 43^s \cdot 4$	W. }	W. R. Dawes.	
HARTWELL - - -	(Dr. Lee.)			
	Lat. $51^{\circ} 48' 36''$	N. }	Communicated by Dr. Lee.	
	Long. $0^h 3^m 24^s \cdot 33$	W. }		
HAVERHILL - - -	(W. W. Boreham, Esq.)			
	Lat. $52^{\circ} 5' 22'' \cdot 8$	N. }	Communicated by W. W. Bore-	
	Long. $0^h 1^m 46^s \cdot 4$	E. }	ham, Esq.	
KENSINGTON - - -	(Sir James South.)			
	Lat. $51^{\circ} 30' 11'' \cdot 6$	N. }	Communicated by Sir James	
	Long. $0^h 0^m 46^s \cdot 8$	W. }	South.	
MARKREE - - -	(E. J. Cooper, Esq.)			
	Lat. $54^{\circ} 10' 31'' \cdot 8$	N. }	Communicated by E. J. Cooper,	
	Long. $0^h 33^m 48^s \cdot 4$	W. }	Esq.	
OCHTERTYRE - - -	(Sir W. K. Murray.)			
(CRIEFF, N.B.)	Lat. $56^{\circ} 23' 24'' \cdot 98$	N. }	Communicated by Sir W. K.	
	Long. $0^h 15^m 32^s \cdot 11$	W. }	Murray.	
OLMÜTZ - - -	(Herr v. Unkrechtsberg.)			
	Lat. $49^{\circ} 35' 40''$	N. }	<i>Ast. Nach.</i> vol. xxxvii. page 77.	
	Long. $1^h 9^m 0^s \cdot 1$	E. }		
REDHILL - - -	(R. C. Carrington, Esq.)			
	Lat. $51^{\circ} 14' 25'' \cdot 3$	N. }	Communicated by R. C. Carring-	
	Long. $0^h 0^m 41^s \cdot 25$	W. }	ton, Esq.	

LATITUDES AND LONGITUDES OF PRIVATE OBSERVATORIES.

REGENT'S PARK - - (George Bishop, Esq.)	Lat. $51^{\circ} 31' 29''.9$ N.	} Communicated by George Bishop, Esq.
	Long. $0^h 0^m 37''.1$ W.	
TARN BANK - - - (Isaac Fletcher, Esq.)	Lat. $54^{\circ} 39' 13''.7$ N.	} Communicated by Isaac Fletcher, Esq.
	Long. $0^h 13^m 44''.52$ W.	
WROTTESELEY HALL - (Lord Wrottesley.)	Lat. $52^{\circ} 37' 2''.3$ N.	} Communicated by Lord Wrottesley.
	Long. $0^h 8^m 53''.57$ W.	

EXPLANATION OF THE ARTICLES

CONTAINED IN

THE NAUTICAL ALMANAC AND ASTRONOMICAL EPHEMERIS

FOR THE YEAR 1864.

ALL the articles of the Ephemeris have been computed for Greenwich MEAN solar time ; and where they are given for apparent solar or sidereal time, it has been chiefly for the convenience of astronomers. A *day* is the interval of time between the departure of any meridian from a heavenly body and its succeeding return to it, and derives its name from the body with which the motion of the meridian is compared. The interval between the departure and return of a meridian to the Sun is called a *solar day* ; in the case of the Moon, the interval is called a *lunar day* ; and in that of a Star, a *sidereal day*. The revolution of the Earth on its axis is always performed in the same time ; and if the heavenly bodies preserved the same positions with respect to each other, the intervals between the departure and return of a meridian to each would be the same, and all days, consequently, of equal length. The Sun, (or more strictly, the Earth in its orbit,) the Moon, and the Planets are, however, in continual motion ; and with velocities not only different from each other, but varying in each particular body : the length of a day, as determined by any of these bodies, is therefore a variable quantity.

Astronomers, with a view of obtaining a convenient and uniform measure of time, have recourse to a *mean solar day*, the length of which is equal to the mean or average of all the apparent solar days in a year. An imaginary Sun, called the *mean Sun*, is conceived to move uniformly in the Equator with the real Sun's *mean* motion in Right Ascension, and the interval between the departure of any meridian from the *mean Sun* and its succeeding return to it is the duration of the mean solar day. Clocks and chronometers are adjusted to mean solar time ; so that a complete revolution (through 24 hours) of the hour hand of one of these machines should be performed in exactly the same interval as the revolution of the Earth on its axis with respect to the mean Sun. If the mean Sun could be observed on the meridian at the instant that the clock or chronometer indicated $0^h\ 0^m\ 0^s$, it would again be observed there when the hour hand returned to the same position. As the time deduced from observation of the *true Sun* is called *true* or *apparent* time, so the time deduced from the *mean Sun*, or indicated by the machines which represent its motion, is denominated *mean time*.

We cannot *immediately* obtain mean time from observation ; but, from an observation of the true Sun, with the aid of the equation of time, which is the angular distance in time between the mean and the true Sun, we may readily deduce it. Suppose the true Sun to be observed on the meridian of Greenwich, Jan. 1, 1864 ; it would then be apparent noon at that meridian ; the equation of time at this instant is $3^m\ 37^{\cdot}87$, and, by the precept at the head of the column, it is "*to be added to*

apparent time"; hence it appears that the corresponding mean time is $0^h 3^m 37^s \cdot 87$, or that the mean Sun had passed the meridian previously to the true Sun, and that at the instant of observation the mean time clock or chronometer ought to indicate this time.

A mere inspection of the columns of the Ephemeris is, of itself, sufficient to show that the quantities are continually varying, and that some reduction is necessary where data are to be obtained for any time differing from that for which the quantities are registered. Take, for instance, the Sun's Right Ascension on Page II. of the month of January; on January 1, it is $18^h 45^m 14^s \cdot 70$; on January 2, it is $18^h 49^m 39^s \cdot 61$; in the course of 24 mean hours it has therefore increased by $4^m 24^s \cdot 91$. If, then, the Right Ascension were required for any time between the Mean Noons of January 1 and 2, as at 6^h from Mean Noon of January 1, it would be necessary to increase the Right Ascension on January 1, by the proportional part of the daily increase due for the 6^h , viz. by one-fourth part, or $1^m 6^s \cdot 23$. This would in all cases be required, even under the meridian of Greenwich, for which the quantities have been specially computed. Let a person be now supposed to be under a meridian 15° West of Greenwich. The positions of the heavenly bodies, as referred to the centre of the Earth, are independent of meridians, and are the same for all places at the same absolute instant; but the relative times at Greenwich and the assumed meridian would be different. If it were 1^h from mean noon at the one place, it could not be 1^h from mean noon at the other; for when we speak of time, we mean, as regards a visible phenomenon, the distance of the Sun *westward* from a given meridian, and at the same absolute moment of time the Sun *cannot* be at the same distance (*reckoning westward*) from two meridians which are 15° distant from each other. Before we can make use of the Ephemeris, it is therefore necessary to ascertain, in every instance, the distance of the Sun (*in time*) from the meridian of Greenwich, or what is commonly called the corresponding Greenwich time; and this is evidently equal to the given time under the assumed meridian, *increased or diminished* by the difference (*in time*) of the two meridians, according as the assumed meridian is to the *Westward* or *Eastward* of Greenwich. In a mean solar day or 24 mean solar hours, the Earth, by its rotation from West to East, has caused every meridian in succession from East to West to pass the mean Sun; and since the motion is uniform, all the meridians distant from each other 15° will have passed the mean Sun, at intervals of one mean hour; the meridian to the Eastward passing first, or being, as compared with the Sun, always one mean hour in advance of the Westerly meridian. When it is 6^h from mean noon at a place 15° West of Greenwich, it is therefore 7^h from mean noon at Greenwich; and it is for this Greenwich time that we must deduce the quantities required from the Ephemeris.

If a chronometer adjusted to Greenwich mean time be at hand, the Greenwich time may be immediately obtained by applying a correction, deduced from the daily rate and interval elapsed, and this will be preferable in all cases for obtaining the requisite data from the Ephemeris.

The day adopted in this Ephemeris is supposed to begin at mean noon, or at the instant when a clock or chronometer shows $0^h 0^m 0^s$, Greenwich mean time, and is continued through the 24 hours, to the following mean noon, when another day begins. It may therefore be called the *mean astronomical day*, although, in practice, astronomers begin the day at the moment the true Sun's centre is on their meridian.

In the civil, or common, method of reckoning, the day is supposed to commence at the *preceding* midnight, and to be counted only to 12 hours or noon, when the 12 hours are reckoned over again to the next midnight. The civil reckoning is therefore always

12^h in advance of the astronomical reckoning : and the civil time corresponding to any given astronomical time is hence readily found by *adding* 12^h to the latter : thus, if to Jan. 1^d 7^h 49^m, astronomical time, be added 12^h, the sum will be Jan. 1^d 19^h 49^m, or Jan. 1^d 7^h 49^m P.M. civil time. Again, to Jan. 1^d 15^h 35^m, astronomical time, add 12^h ; the sum will be Jan. 2^d 3^h 35^m A.M. civil time. It thus appears that, from noon to midnight, the day of the month and the hour of the day are the same in both methods ; but from midnight to noon they differ ; for at midnight, when a new civil day commences, the astronomical day wants 12^h of its completion.

The conversion of civil into astronomical time, is, on the contrary, performed by *diminishing* the former by 12^h. Thus, January 2^d 3^h 35^m A.M. civil time, diminished by 12^h, leaves January 1^d 15^h 35^m for the corresponding astronomical time.

To each month there are devoted twenty pages, distinguished by the Roman numerals I. to XX.

For convenience of interpolation, the quantities that follow next in order of succession have been added at the bottom of each page. Thus the quantities opposite to February 1 will be found inserted also opposite to January 32, the number of the days in each month having been intentionally increased for such purpose.

Page I. of each Month.

The contents of this page are adapted to *apparent noon*, or the instant when the Sun's centre is on the meridian of Greenwich. The *Sun's Right Ascension*, here given, is *affected with aberration*, and reckoned from the true equinox ; it is therefore the sidereal time at apparent noon, or the time which ought to be shown by a sidereal clock, at that instant. The *Sun's Apparent Declination* is the angular distance of the Sun from the equator, measured on the meridian.

The columns entitled "Diff. for 1 hour" are intended to facilitate the reduction of the quantities from apparent noon to any other time. The values of these quantities for any proposed *mean* time will, however, be more accurately ascertained by means of the numbers on page II. from which, indeed, they have been derived.

The *Sidereal Time of the Sun's Semidiameter passing the Meridian* is useful for reducing a transit observation of either limb of the Sun, when one only has been observed, to the transit of the centre.

The *Equation of Time* is the difference between apparent and mean time, and therefore serves for the conversion of either time into the other. The numbers here given, show, for Greenwich apparent noon, the distance of the mean Sun from the meridian, or the portion of time to be *added to* or *subtracted from*, (according to the precept at the head of the column,) Greenwich apparent noon to obtain the corresponding mean time at the same meridian, or the time which ought to be shown by the mean time clock. It differs from the equation of time on page II., because the equation itself varies in the interval between apparent and mean noon.

Where time is deduced from observations of the Sun, the *immediate* result is *apparent* time ; to convert it into mean time, the equation of time is necessary, and it is to be applied to apparent time, according to the precept at the head of the column.

Thus, suppose the apparent time deduced from an observation of the Sun on January 16, 1864, in longitude 45° or 3^h East of Greenwich, to be 6^h, and it were required to convert it into mean time ; subtracting the difference of longitude 3^h from the apparent time at the place, we have 3^h for the corresponding apparent time at Greenwich. The difference of the equation for 1 hour at Noon is 0^m 864, and for

midway between noon and 3^h , or $1^h 30^m$, it is $\cdot 862$, which, multiplied by 3, gives $2^h 58^m 6$ for the variation in 3 hours, and this being added (because the equation is increasing) to $9^m 55^s 38$, the equation of time at apparent noon, the result is $9^m 57^s 97$, to be added (according to the precept at the head of the column) to the given apparent time 6^h , whence we obtain $6^h 9^m 57^s 97$ for the mean time required.

At page I. of the month of April, we observe, at the head of the column *added to*
subt. from, which signifies that a change of precept occurs in the course of the month; and between the equations opposite to the 14th and 15th days of the month, a black line, indicating that the change occurs between the apparent noons of those days. The upper precept applies to all the quantities above the black line; and the lower precept to all the quantities below it: that is, in the instance referred to, the equation of time is to be *added* to apparent time from the 1st of April to the instant at which the equation becomes $0^m 0^s$, which happens between the noons of the 14th and 15th days of the month; but after that instant the equation is to be *subtracted* from apparent to obtain mean time.

Page II. of each Month.

The *Sun's Apparent Right Ascension* and *Declination* at mean noon have been deduced from its *apparent* Longitude and Latitude given at page III., and the *apparent* obliquity of the ecliptic at page 242. They denote the *apparent* position of the true Sun with reference to the equator, and the true equinox, at the instant the Greenwich mean time clock, or chronometer, indicates $0^h 0^m 0^s$, or when the hour angle of the true Sun is equal to the equation of time.

To find the Right Ascension and Declination for any other mean time and place, as at $9^h 20^m$ A.M. March 2, 1864, in longitude 98° , or $6^h 32^m$, West of Greenwich. The astronomical time, corresponding to $9^h 20^m$ A.M. March 2, is $21^h 20^m$ from the noon of March 1, or March $1^d 21^h 20^m$, agreeably to what has been said before. The longitude, being West of Greenwich, must be added to March $1^d 21^h 20^m$, and the result, March $2^d 3^h 52^m$, is the corresponding Greenwich mean time, for which the Right Ascension and Declination are to be found. The difference between the Right Ascensions on March 2, and March 3, is $3^m 43^s 68$, that is, in the 24 mean hours succeeding the mean noon of March 2, the Right Ascension has increased by this quantity; it will, therefore, have received a proportional part of the increase in $3^h 52^m$, and the amount is readily obtained by this proportion $24^h : 3^m 43^s 68 :: 3^h 52^m : 36^s 04$; which, being *added* to $22^h 54^m 23^s 34$, the Right Ascension at mean noon of March 2, gives $22^h 54^m 59^s 38$, for the Right Ascension at the time proposed.

In a similar manner the Declinations indicate a decrease of $23' 0'' 4$ in the 24 hours; therefore $24^h : 23' 0'' 4 :: 3^h 52^m : 3' 42'' 4$, the proportional part of the decrease for $3^h 52^m$, which, *subtracted* from $S. 6^\circ 59' 7'' 0$ leaves $S. 6^\circ 55' 24'' 6$ for the Declination required. Correction for second difference would increase the Right Ascension by $0^s 03$, and the Declination by $0'' 4$.

The *Semidiameter of the Sun*. The numbers in this column express the angle at the centre of the earth subtended by the Sun's semidiameter, and are required for reducing observations of the limb to the centre, as in the instance of measuring the altitude of the Sun's upper or lower limb, or the distance of the Moon from the Sun.

Equation of Time. The numbers in this column are the values of the equation at the instant of mean noon, and therefore serve more particularly to convert *mean* into *apparent* time; for which purpose we have only to apply the equation according

to the precept at the head of the column. Thus, if from mean noon of April 2, or 0^h, be subtracted the equation 3^m 31^s·09; April 1^d 23^h 56^m 28^s·91 is the corresponding apparent time. To find the equation of time at 11^h P.M. mean time on April 14, 1864, in longitude 105°, or 7^h 0^m, West of Greenwich. Add the difference of longitude to the given time, because it is West, and the corresponding astronomical mean time at Greenwich is April 14^d 18^h 0^m. The variation in 24 hours is 14^s·91, that is, the *sum* of the equations belonging to the noons of the 14th and 15th, because the equation has decreased to 0 and then increased in the interval, therefore

$$24^h : 14^s \cdot 91 :: 18^h 0^m : 11^s \cdot 18,$$

which, being greater than 0^m 10^s·88, the equation on the 14th, which was decreasing, shows that in the 18^h 0^m the equation has passed through its state of decrease to zero, or 0, and is now increasing. The difference 0^s·30 is the equation of time at the time proposed, and is to be added to mean time, because it has passed the zero.

Sidereal Time at Mean Noon is the angular distance of the first point of Aries, or the true vernal equinox, from the meridian, at the instant of mean noon: it is therefore the Right Ascension of the mean Sun, or the time which ought to be shown by a sidereal clock at Greenwich, when the mean time clock indicates 0^h 0^m 0^s.

A sidereal clock represents the rotation of the Earth on its axis, as referred to the stars, its hour hand performing a complete revolution through the 24 hours in the interval between the departure of any meridian from a star and its next return to it. At the moment that the vernal equinox, or a star whose Right Ascension is 0^h 0^m 0^s, is on the meridian of Greenwich, the sidereal clock ought to show 0^h 0^m 0^s, and at the succeeding return of the star, or the equinox, to the same meridian, the clock ought to indicate the same time.

The sidereal time here given is that in common use among astronomers, and expresses the actual hour angle from the meridian, westward, of the true equinoctial point at the moment of observation. It is therefore affected by the equation of the equinoxes; and is not, strictly speaking, a *mean* or uniformly increasing quantity. It ought, therefore, to be termed *apparent sidereal time* in the same manner as apparent solar time reckons from the actual arrival of the sun's centre on the meridian; and in like manner, as mean solar time is reckoned from the arrival of an imaginary sun, moving uniformly with its mean velocity, so *mean sidereal time* (whose expression would be simply $\frac{\odot's \text{ mean longitude}}{15}$) would be reckoned from the transit of, not the

true, but the *mean* equinoctial point. The smallness of the fluctuations to which a clock, regulated to *apparent* sidereal time compared with one regulated to *mean* sidereal time, is subject, being at the utmost only 2^s·3 in a period of nineteen years, has prevented the practical inconvenience of this from being felt: no clock being sufficiently perfect to go during so long a period without frequent re-adjusting; and as the corrections applied by astronomers to the observed right ascensions of all objects are adapted to this supposed irregularity in the rate of the clock, the mean right ascensions thence deduced come out correct. It has, therefore, not been thought necessary, in this instance, to depart from received usage, however theoretically objectionable such a mode of counting time may appear, since a change in this respect would involve the necessity of a corresponding change in all tables of nutation.

The sidereal time at mean noon is useful in all cases where mean solar time is to be deduced from observations of the heavenly bodies. It serves to facilitate the reduction of sidereal to mean solar time, and *vice versa*, by the help of the tables commonly used for that purpose called a Table of Acceleration of Sidereal on Mean

solar time, and the corresponding Table of Retardation of Mean on Sidereal time, according to the following rule:—Convert the interval from the mean noon immediately preceding, from the denomination given, to that required; and if mean time be required, the result will at once be that which the clock should show; but if sidereal time be that sought, the result must be added to the sidereal time at the preceding mean noon.

Example:—To convert $21^h 9^m 24^s \cdot 04$ sidereal time, January 2, 1864, into mean solar time, for the meridian of Greenwich.

	h	m	s
Sidereal time given - - - - -	21	9	24 ⁰⁴
Sidereal time at mean noon, January 2 - - - -	18	45	33 ⁴⁶
Interval in sidereal time from mean noon - - - -	2	23	50 ⁵⁸
Retardation of mean on sidereal time for the interval	-	23	57

Mean solar time required - - - - - $2\ 23\ 27^{\cdot}01$
 -which is the interval elapsed since mean noon, expressed in mean time; and therefore the time which ought to be shown by a mean time clock.

Vice versâ, to convert $2^h 23^m 27^s \cdot 01$ mean solar time, January 2, 1864, into sidereal time for the same meridian.

	h	m	s
Mean interval from mean noon, January 2 - - -	2	23	27 ⁰¹
Acceleration of sidereal on mean time for the interval		+	23 ⁵⁷
Sidereal interval from mean noon - - - - -	2	23	50 ⁵⁸
Sidereal time at mean noon, January 2 - - - -	18	45	33 ⁴⁶

Sidereal time required - - - - - $21\ 9\ 24^{\cdot}04$
 -which ought to be the time shown by the sidereal clock at the instant in question.

If the place of observation be not on the meridian of Greenwich, the sidereal time must be corrected by the *addition* of $9^{\cdot}8565$ for each hour (and proportional parts for the minutes and seconds) of longitude, if the place be to the west of Greenwich; but by its *subtraction*, if to the east. Thus in $9^h 10^m 6^s$ west longitude, the sidereal time at mean noon, January 2, instead of being, as in the foregoing Example, $18^h 45^m 33^s \cdot 46$, must be corrected by adding $1^m 30^s \cdot 37$, thus giving $18^h 47^m 3^s \cdot 83$ for the time to be used, instead of that set down in the column.

The conversion of mean solar to sidereal time, and *vice versâ*, may, however, be performed, and with perhaps less liability to error, by means of this and of the column entitled *Mean Time of Transit of the First point of Aries*, at page XX. of each month, using the Tables of Time Equivalents, inserted at pages 500 to 503.

To convert mean solar into sidereal time: To the sidereal time at the *preceding* mean noon add the sidereal interval corresponding to the given mean time; the sum will be the sidereal time required. (See Example at page 501.)

To convert sidereal into mean solar time: To the mean time at the *preceding* sidereal noon, add the mean interval corresponding to the given sidereal time; the sum will be the mean solar time required. (See Example at page 503.)

In this mode of reduction there is not, as in the former, by means of the Tables of Acceleration and Retardation, any distinction of cases, all the quantities being additive.

The Tables of Time Equivalents differ from the Tables of Acceleration and Retardation, in containing the *values* of intervals of each species of time, expressed in

terms of the other, instead of the *corrections*, respecting the proper application of which, a difficulty is sometimes felt by unpractised computers.

Sidereal time at mean noon is also used in finding the mean time of transit of a heavenly body.

Page III. of each Month.

The *Sun's Longitude*, here given, is affected with *aberration*, and reckoned from the *true* equinox : it is therefore the apparent longitude of the Sun at the instant of mean noon ; or it is (if *R* denote the Radius Vector) the *true* Longitude of the Sun at the time $0^h - 497^m \cdot 78 R$, because aberration causes the Sun to appear behind its true place in the *Ecliptic*.

The *Sun's Latitude* is the angular distance of the Sun's centre from the plane of the *Ecliptic*, measured on a circle perpendicular to that plane.

The *Logarithm of the Radius Vector of the Earth* is the logarithm of the distance between the centre of the Earth and the true place of the centre of the Sun at mean noon, the mean distance, or the semi-axis major of the orbit, being considered unity.

These quantities are derived *immediately* from the Solar tables, and enter into, indeed are the foundation of, nearly all the subsequent operations in the Ephemeris. Whenever the *true* Longitude of the Earth is required, as in calculating the Geocentric position of a Planet or Comet from its Heliocentric position, it is necessary to reduce the *apparent* Longitude of the Sun to the *true*, by correcting it for aberration. The Sun's aberration for every tenth day is given at page 242, and may thence be readily obtained for any other day of the year. (See *Sun's aberration*, page 527).

The Sun's Longitude, entering into the expressions for aberration and solar nutation, is required for the reduction of the stars' places.

The *Moon's Semidiameter* is the angle under which her Semidiameter would appear if viewed from the centre of the Earth ; and her *Horizontal Parallax* is the *greatest* angle under which the Earth's equatorial semidiameter would appear if seen from the centre of the Moon. The former is requisite to obtain the position of the centre from an observation of the Moon's *limb*, as in all cases of altitudes or lunar distances. The latter, for computing the horizontal parallax of the Moon at any given latitude on the Earth, *considered as a spheroid* ; also for finding the parallax in altitude, Right Ascension, &c., for the purpose of reducing an observation of the Moon made on the surface of the Earth, to what it would be if made at the centre.

In reducing observations of the Moon made at sea, the horizontal *equatorial* parallax is generally used for finding the parallax in altitude, without regarding the previous reduction to the spheroid ; but in calculations requiring considerable precision, as in lunar occultations and solar eclipses, this reduction cannot be dispensed with.

Example. To find the Moon's semidiameter and horizontal parallax at 6^h A.M. January 10, 1864, at a place 15°, or 1^h to the East of Greenwich. The civil time at the place expressed in mean astronomical time, is January 9^d 18^h, from which subtracting 1^h, because the place is to the East of Greenwich, we have January 9^d 17^h for the corresponding time at Greenwich, or 5^h after midnight. Proceeding from the semidiameter given for midnight of the 9th, we must compute the proportional part of the variation in 12 hours due to the time elapsed since midnight, viz. 5^h ; and for ordinary purposes at sea, it will suffice simply to take this propor-

tional part for the correction of the registered value preceding the given time; thus the semidiameter for midnight, or 12^h, of the 9th, is 16' 43''·6, and for the 10th at noon, or 24^h, it is 16' 43''·1; the difference 0''·5 is the variation in 12 hours. Therefore,

$$12^h : 0''\cdot5 :: 5^h : 0''\cdot2,$$

which *subtracted* (because the quantities are decreasing) from 16' 43''·6, gives 16' 43''·4 for the Moon's semidiameter at the time proposed. Similarly the horizontal parallax at midnight of the 9th is 61' 16''·9; and at noon of the 10th it is 61' 15''·3; the difference 1''·6 is the variation in the 12 hours which include the given time; therefore, 12^h : 1''·6 :: 5^h : 0''·7, which *subtracted* (because the quantities are decreasing) from 61' 16''·9 gives 61' 16''·2 for the Horizontal parallax required. If greater accuracy be desired, a further correction must be applied to the values just obtained, on account of second differences, to compensate the error produced by supposing the first differences uniform. But the *greatest* error in the semidiameter which can arise by this supposition in the present instance is not two-tenths of a second; for, select four semidiameters from the Ephemeris, two preceding, and two following the given time, and take the first and second differences thus:—

January 9,	^h	0	16	42	·7	+	0	·9	—	0	·4
	12		16	43	·6	—	0	·5	—	1	·4
10,	0		16	43	·1	—	1	·7	—	1	·2
	12		16	41	·4						

The mean of the second differences is 1''·30 and $\frac{1}{2}$ of this, which is the *greatest* effect, is only 0''·16.

A similar operation performed on the parallaxes will show the error that would arise on the supposition of uniform or equal first differences, to be six-tenths of a second.

Page IV. of each Month.

The *Moon's Longitude and Latitude* at mean noon and midnight indicate the position of the Moon at these respective times, referred to the Ecliptic and the true equinox, as it would be seen from the centre of the Earth. They are the results deduced immediately from the lunar tables, and are the foundation of all subsequent calculations in which the Moon is concerned. These quantities are now of little use to the seaman, as the position of the Moon, with respect to the Equator, is given for every hour in the succeeding pages; but the Moon's Longitude is involved in the formulæ for nutation, and is therefore necessary for its determination. In finding the Moon's Longitude and Latitude for any other times than those of mean noon and midnight, it is necessary to apply the equation of second, and sometimes even of third and fourth differences, on account of the irregular variation of her motion.

The *Moon's Age* at mean noon is the mean time elapsed since the Moon's ecliptic conjunction with the Sun, or since the Sun and Moon had the same Longitude. The numbers in this column represent her age at Greenwich, and are expressed in days, and decimal parts of a day.

The *Moon's Meridian Passage*.—This column contains the Greenwich mean time to the nearest tenth of a minute, at which the Moon's centre is on the *upper* meridian of Greenwich, and is useful to indicate when the Latitude may be obtained from an observed meridian altitude of the Moon; also, in conjunction with a Table of semi-

diurnal Arcs, to determine approximately the times of the rising and setting of the Moon: it is likewise useful in finding the time of High Water.

When the symbol (ζ) denoting conjunction occurs, as on January 8, we are to understand that the Moon does *not* pass the *upper* meridian on that day at Greenwich. This is the case once in every lunation, and arises from the circumstance of the lunar day being greater than the mean solar day, and including it within its limits. In the present instance, the excess is $1^h 1^m 8^s$, or the lunar day is equal to $25^h 1^m 8^s$ mean solar time; the Moon passes the meridian on the 7th at $23^h 14^m 1^s$, or $45^m 9^s$ *previously* to the noon of the 8th, and does not return to the same meridian until $0^h 15^m 9^s$ *after* the noon of the 9th. For the same reason there is also one day in every lunation on which the Moon does not transit the *lower* meridian, and this happens about the time of opposition, or when the difference of longitude of the Sun and Moon is 180° . In the list of Moon-culminating stars, at pages 390 to 428, the days on which only one transit occurs are readily seen. On January 8th (page 390), for instance, it appears that the Moon transits the *lower* meridian only, while on February 22nd (page 395), the only transit is that at the *upper* meridian.

To find the Mean Time of Transit under any other meridian, suppose 45° or 3^h West of Greenwich, on February 15, 1864. The meridian being to the West of Greenwich, the transit will take place *after* the Greenwich time of transit on the 15th; therefore take the difference between the meridian passages on the 15th and 16th, which is $0^h 50^m 2^s$. Then $24^h : 0^h 50^m 2^s :: 3^h : 6^m 3^s$, which *added* to the Greenwich mean time of transit gives $7^h 3^m 1^s$ for the mean time of transit at the given meridian. Had the assumed meridian been 3^h to the East of Greenwich, the transit would have taken place *before* the transit at Greenwich, and the proportional part of the difference between the 14th and 15th, must in this case have been *subtracted*. The times thus deduced are only approximate; but they are sufficiently accurate for the purposes usually required.

Pages V. to XII. of each Month.

The *Moon's Right Ascension and Declination* for every hour of the day, with the *Difference of Declination for 10 minutes*. By means of the quantities here given, the Latitude, Time, Azimuth, Moon's rising and setting, &c., may be deduced, with nearly as little labour as is required in the case of the Sun. The numbers represent the position of the Moon, as it would appear from the centre of the Earth, with respect to the equator and the true equinox; and they are given for every hour, with the view of rendering any correction for second differences unnecessary, except where extreme precision is required. The Right Ascension for any time is readily obtained by simply adding the proportional part of the hourly variation due to the interval elapsed since the preceding hour. Thus, suppose the Right Ascension of the Moon were required at $8^h 45^m$ mean time on January 12, in longitude 60° , or 4^h east of Greenwich. The given time, $8^h 45^m$, diminished by 4^h , gives the corresponding Greenwich time $4^h 45^m$. The Right Ascension at 4^h is $22^h 34^m 38^s \cdot 90$, and at 5^h it is $22^h 36^m 56^s \cdot 39$; the difference $2^m 17^s \cdot 49$, is the increase in the interval, or 60^m . Hence, $60^m : 2^m 17^s \cdot 49 :: 45^m : 1^m 43^s \cdot 12$, which being *added* to the Right Ascension at 4^h , gives $22^h 36^m 22^s \cdot 02$ for the Right Ascension at $4^h 45^m$ at Greenwich, or at $8^h 45^m$ under the proposed meridian. To find the Declination, we make use of the numbers in the column headed "Diff. Dec. for 10^m." The number in this column standing opposite to any hour is $\frac{1}{4}$ of the difference of the Declinations at that and the following hour. We therefore say, $10^m : 129^s \cdot 90 :: 45^m : 9' 44^s \cdot 6$, which being

subtracted (because the Declinations are decreasing) from $S. 3^{\circ} 37' 14'' \cdot 1$, the Declination at 4^h , gives $S. 3^{\circ} 27' 29'' \cdot 5$, for the Declination at the time proposed.

The *Phases of the Moon*. These are given at page XII. to the nearest tenth of a minute. The numbers denote the Greenwich mean time, at which the difference of Longitude between the Sun and the Moon is 0° , 90° , 180° , or 270° , being

0° at the New Moon,
 90° at the First Quarter,
 180° at the Full Moon,
 270° at the Last Quarter.

The Moon's *Apogee and Perigee*. The numbers here given indicate, to the nearest hour, the Greenwich mean time at which the Moon is respectively at her greatest and least distance from the Earth.

Pages XIII. to XVIII. of each Month.

Lunar Distances.—These pages contain, for every third hour of Greenwich mean time, the angular distances between the apparent *centres* of the Moon and certain heavenly bodies, such as they would appear to an observer at the centre of the Earth. When a Lunar Distance has been observed on the surface of the Earth, and reduced to the centre, by clearing it of the effects of parallax and refraction, the numbers in these pages enable us to ascertain the exact Greenwich mean time at which the objects would have the same distance. They are arranged, from *west* to *east*, commencing each day with the object which is at the greatest distance *westward* of the Moon, in the precise order in which they appear in the heavens; W. indicating that the object is west, and E. east of the Moon. Thus we have at one view, by a simple reference to the date, all the lunar distances which are available for the determination of the Longitude.

The columns headed "P.L. of diff." contain the proportional logarithms of the differences of the distances at intervals of three hours, which are used in finding the Greenwich time corresponding to a given distance, according to the following rule, viz.: For the given day, seek in the Ephemeris for the *nearest* distance *preceding*, in order of time, the given distance, and take the difference between it and the given distance; from the proportional logarithm of this difference subtract the proportional logarithm standing opposite to the said *nearest* distance in the Ephemeris; the remainder will be the proportional logarithm of a portion of time to be added to the hour answering to the *nearest* distance, to obtain the approximate Greenwich mean time corresponding to the given distance.

If the distance between the Moon and a Star increased or decreased uniformly, the Greenwich times corresponding to a given distance, as found by the above rule, would be strictly correct; but an inspection of the columns of the proportional logarithms in the Ephemeris will show that this is not the case; and as the knowledge of the exact Greenwich time is desirable, a correction must be applied to the time so found for the variation of the differences of the distances. This correction may be obtained by means of the Table at page 496 of the present volume, in the following manner:

1. Find the approximate interval by the preceding rule.
2. Take the difference between the proportional logarithms standing opposite to the distances in the Ephemeris which include the given distance.
3. With the approximate interval and this difference, as arguments, take out the correction from the table.

4. If the proportional logarithms are *decreasing*, *add* the correction to the approximate time; but if *increasing*, *subtract* it: the result will be the accurate Greenwich mean time.

Example I.—Suppose it were required to find the Greenwich mean time, at which the *reduced* distance between the Moon and α Pegasi would be $30^{\circ} 34' 18''$ on August 20, 1864. It appears, by inspecting the distances, that the time must be between *Midnight* and XV^h : the *nearest* distance *preceding*, in order of time, the given distance is therefore the

Distance at <i>Midnight</i>	$29^{\circ} 48' 41''$	and P. L.	- - 2887
<i>Reduced</i> Distance	$30^{\circ} 34' 18''$		
Difference	$0^{\circ} 45' 37''$	- P. L.	- - 5962
Approximate Interval	$1^h 28^m 40^s$	- P. L.	- - 3075

The difference between the proportional logarithms in the Ephemeris, at *Midnight*, and XV^h , is 53. Opposite to $1^h 28^m 40^s$ (or the quantity nearest to it, $1^h 30^m$), and under 54, in the table, we have for the correction 17^s , which, *added* to the approximate interval, $1^h 28^m 40^s$, because the proportional logarithms are *decreasing*, gives $1^h 28^m 57^s$, for the true interval from *Midnight*: and hence the Greenwich mean time is $13^h 28^m 57^s$.

We see that, in the preceding Example, the omission of this correction would only produce an error of $4' 25''$ in the Longitude. Cases may, however, occur, in which it would be greater.

It will sometimes happen, that the difference of the proportional logarithms will exceed 138, the limit of the table of correction; in this case the table may be entered with the approximate interval, and *one-half or any fraction* of the difference of the proportional logarithms and the corresponding correction *increased in like proportion*.

Example II.—Suppose it were required to find the Greenwich mean time, at which the *reduced* distance between the Moon and Fomalhaut would be $31^{\circ} 42' 57''$ on November 6, 1864. By inspecting the distances, it appears that the time must be between IX^h and *Midnight*; therefore take the

Distance at IX^h	$32^{\circ} 11' 33''$	and P. L.	- - 4924
<i>Reduced</i> Distance	$31^{\circ} 42' 57''$		
Difference	$0^{\circ} 28' 36''$	- P. L.	- - 7989
Approximate Interval	$1^h 28^m 52^s$	- P. L.	- - 3065

The difference between the proportional logarithms in the Ephemeris, at IX^h and *Midnight*, is 285, one-third of which is 95; under this number in the table, and opposite that nearest the approximate interval, is $29\frac{1}{2}^s$: the correction is therefore 89^s to be *subtracted* from the approximate interval, because the proportional logarithms are *increasing*; the time at Greenwich is therefore $10^h 27^m 23^s$.

The omission of the correction in the preceding example would produce an error of $22' \cdot 25$ in Longitude; it may, however, be considered as an extreme case, and such as will seldom be met with.

The proportional logarithms also serve to point out the star which is most favourably circumstanced for accurate observation; that star being to be preferred which has the least proportional logarithm opposite to it; for, the greater the velocity of the Moon from or towards a Star, the greater is the reliance to be placed on an observation of the distance; and it is a property of proportional logarithms to decrease as their natural numbers increase: a smaller proportional logarithm, therefore, indicates a greater velocity of the Moon, or a greater variation of distance in the interval, upon which the value of the observation depends. Thus, on August 25, 1864, between *Noon* and *III^h*, α Arietis is the most eligible star, because the proportional logarithm, 2902, is less than that of any other; and, by inspecting the columns of proportional logarithms, it will appear to deserve the preference until the beginning of August 26, when Aldebaran takes precedence.

On the 8th day of December, between *IX^h* and *Midnight*, the following is the order of preference, as indicated by the proportional logarithms, viz, Mars, Aldebaran, Pollux, SUN, α Aquila, Venus, α Pegasi, Fomalhaut.

It is by no means to be inferred from these remarks that observations of any of the distances are to be neglected; on the contrary, every registered star should invariably be observed when an opportunity offers. If, however, on a comparison of results, a considerable difference should be discovered, the proportional logarithms will indicate the stars which are least liable to be affected by errors of observation, and therefore deserving of a greater degree of confidence as to the accuracy of the results obtained from them.

Page XIX. of each Month.

Airy's Day Numbers, for correcting the Places of the Fixed Stars.

These are computed from the logarithms of A, B, C, D, in page XX, by the formulæ in the introduction to the Greenwich Twelve-year Catalogue,* and are used with constants found in that Catalogue. They have been employed for some time at the Royal Observatory, Greenwich, and their use is considered by the Astronomer Royal, to possess some advantage over the well-known method of Bessel, in consequence of there being no algebraic signs to attend to; the following example will illustrate their application, and serve for comparison with the similar operation by Bessel's method in page 524.

Required the corrections of the Right Ascension and North Polar Distance of γ Orionis (No. 454 G^h 12 Yr. Cat.) for Precession, Aberration, and Nutation, at Greenwich mean midnight on February 5, 1864.

Logarithms.		Nat. Nos.	Logarithms.		Nat. Nos.
ϵ	- - 0° 08 367		ϵ'	- - 9° 94 196	
E	- - 1° 05 657		E	- - 1° 05 657	
	<u>1° 14 024</u>	- - - - 13° 8 12		<u>0° 99 853</u>	- - - - 9° 97

* Catalogue of 2156 Stars, formed from the observations made during twelve years from 1836 to 1847, at the Royal Observatory, Greenwich. London, 1849. 4to.

Logarithms.		Nat. Nos.	Logarithms.		Nat. Nos.
<i>f</i>	- - 0°10240	<i>Brought up</i> 13°812	<i>f'</i>	- - 0°07185	<i>Brought up</i> 9°97
<i>F</i>	- - 1°59183		<i>F</i>	- - 1°59183	
	1°69423	49°458		1°66368	46°10
<i>g</i>	- - 1°45046		<i>g'</i>	- - 1°32770	
<i>G</i>	- - 0°20486		<i>G</i>	- - 0°20486	
	1°65532	45°219		1°53256	34°08
<i>A</i>	- - 0°07967		<i>H</i>	- - 0°33894	
<i>H</i>	- - 1°48326		<i>H</i>	- - 1°48326	
	1°56293	36°553		1°82220	66°41
	Value of <i>l</i>	84°150		Value of <i>l'</i>	78°55
	Value of <i>L</i>	72°866		Value of <i>L</i>	72°87
	Sum - -	302°058		Sum - -	307°98
	Constant -	300°0		Constant -	300°0
Correction of Right Ascension +	2°058		Correction of North Polar Distance +	7°98	

Page XX. of each Month.

1. *Logarithms of A, B, C, D, for correcting the Places of the Fixed Stars.*

In the formulæ which express the relation of the apparent place of a Star to its mean place, and reciprocally, there are certain factors which are independent altogether of the Star's place, and are therefore common to all Stars. These factors depend upon the longitudes of the Sun, Moon, and Moon's ascending Node.

The logarithms here given are the logarithms of these independent factors conveniently arranged for incorporation with other terms depending upon each particular Star, according to the method recommended by the late Professor Bessel. They have been computed for mean midnight at Greenwich, according to the formulæ exhibited at page 329, omitting in C and D the terms depending on 2 (.

In the form under which they now appear, they are chiefly used in conjunction with the Catalogue of the British Association,* which contains the logarithms of the remaining factors depending on the Star's place; and for the reduction of any Star in that Catalogue, they appear to afford every facility that can be desired.

Where, however, the apparent place of any Star, *not in the British Association Catalogue*, is required, similar quantities to those must either be computed with reference to the particular Star, before we can use the A, B, C, D, or recourse must be had to other and independent means; such, for instance, as are afforded by the table at pages 330 and 331, which serves equally for all Stars. The formulæ by which this table has been constructed are given at page 329.

The following Examples will sufficiently illustrate the mode of using both tables.

* "The Catalogue of Stars of the British Association for the Advancement of Science; containing the Mean Right Ascensions and North Polar Distances of eight thousand three hundred and seventy-seven Fixed Stars, reduced to January 1, 1850: together with their annual precessions, secular variations, and proper motions, as well as the logarithmic constants for computing precession, aberration, and nutation. With a Preface explanatory of their Construction and Application. By the late Francis Bailey, Esq." London, 1845. 4to.

Required the Correction ($\Delta \alpha$) of the Right Ascension and ($\Delta \delta$) of the Declination of γ Orionis (No. 1687 B.A.C.) for Precession, Aberration, and Nutation, at Greenwich mean midnight, on February 5, 1864.

1.—By the B. A. C. Constants and the Logarithms of A, B, C, D.

Mean α , Jan. 1, 1850	- - - -	^h 5 ^m 17 ^s 5.33	Mean δ	- - - -	+ 6 12 34.3
14 Years' precession and proper motion	+ 45.08		14 Years' precession and proper motion	+ 52.1	
Mean α , Jan. 1, 1864	- - - -	<u>5 17 50.41</u>	Mean δ	- - - -	<u>+ 6 13 26.4</u>
Logarithms.			Logarithms.		
a	- - -	+ 8.0963	a'	- - -	+ 9.5120
A	- - -	- 1.1338	A'	- - -	- 1.1338
aA	- - -	- 9.2301	$a'A'$	- - -	- 0.6458
	- - -	- - - -		- - -	- - - -
b	- - -	+ 8.8188	b'	- - -	+ 8.3039
B	- - -	+ 1.1483	B'	- - -	+ 1.1483
bB	- - -	+ 9.9671	$b'B'$	- - -	+ 9.4522
	- - -	- - - -		- - -	- - - -
c	- - -	+ 0.5070	c'	- - -	+ 0.5721
C	- - -	+ 9.6050	C'	- - -	+ 9.6050
cC	- - -	+ 0.1120	$c'C'$	- - -	+ 0.1771
	- - -	- - - -		- - -	- - - -
d	- - -	+ 7.1304	d'	- - -	- 9.9923
D	- - -	+ 0.7346	D'	- - -	+ 0.7346
dD	- - -	+ 7.8650	$d'D'$	- - -	- 0.7269
	- - -	- - - -		- - -	- - - -
		<u>$\Delta \alpha = + 2.058$</u>			<u>$\Delta \delta = - 7.970$</u>

2.—By the independent Constants.

For February 5, 1864, the Table at pages 330, 331, furnishes

$$f = +18.56; g = +9.73; G = 33.54; h = +19.57; H = 315.57; i = -5.91$$

$$\alpha \text{ (in time) converted} = 79.28$$

$$G + \alpha = 113.22$$

$$H + \alpha = 35.25$$

Logarithms.		Nat. Nos.	Logarithms.		Nat. Nos.
f	- - -	+ 18.56			
g	- - -	+ 0.9881			
$\sin (G + \alpha)$	- - -	+ 9.9628	\cos	- - -	+ 0.9881
$\tan \delta$	- - -	+ 9.0376			
	- - -	- - - -			
	- - -	+ 9.9885			- 0.5865
	- - -	- - - -			- - - -
	- - -	+ 0.97			- - - -
h	- - -	+ 1.2916			
$\sin (H + \alpha)$	- - -	+ 9.7631	\cos	- - -	+ 1.2916
$\sec \delta$	- - -	+ 0.0026	\sin	- - -	+ 9.9111
	- - -	- - - -			+ 9.0350
	- - -	+ 1.0573			- - - -
	- - -	- - - -			+ 0.2377
	- - -	+ 11.41			- - - -
		<u>$\Delta \alpha \text{ (in arc)} = + 30.94$</u>			
		<u>$\Delta \alpha \text{ (in time)} = + 2.063$</u>	i	- - -	- 0.7716
			$\cos \delta$	+ 9.9974	
					- 0.7690
					- - - -
					- 5.87
					<u>$\Delta \delta = - 8.00$</u>

Hence the App. Right Ascens. of γ Orionis = ^h 5 ^m 17 ^s 50.41 + 2.06 = ^h 5 ^m 17 ^s 52.47
 and the Apparent Declination = + 6 13 26.4 - 8.0 = + 6 13 18.4

2. Mean Time of Transit of the First Point of Aries.

The time in this column shows the distance of the *mean* Sun from the meridian, at the instant when the *true* point of intersection of the ecliptic and equator (called the first point of Aries) is on the meridian of Greenwich; and as the distance of the first point of Aries from the meridian, at the instant the mean Sun is on the meridian, is denominated sidereal time at mean noon, this may, by analogy, be termed the *mean time at sidereal noon*. It is the time which ought to be shown by a mean time clock adjusted to the Greenwich meridian, at the moment that a clock, adjusted to sidereal time, indicates exactly $0^h 0^m 0^s$. The use of this column is to facilitate the reduction of sidereal to mean solar time, with the help of the Table of Time Equivalents, given at pages 502 and 503, as has been already explained at page 516.

3. Mean Equinoctial Time.

Mean Equinoctial Time signifies the mean time elapsed since the instant of the mean vernal equinox. The numbers in this column represent this time, at every mean noon, in mean solar days and fractional parts of a day; it is reckoned from the mean vernal equinox of 1863, between January 1^d and March 21^d·761455, but after March 21^d·761455 from the vernal equinox of 1864; for the Equinoctial Year has been assumed equal to 365·242216 mean solar days; and as the Equinoctial Time corresponding to the mean noon of March 21, 1864, is 364^d·480761, it is evident that the Equinoctial Year of 1863-64 will be completed, and a new year commenced, at 0^d·761455 after Mean Noon of the 21st.

The Fraction of the day at the head of the column is common to all the days of the Equinoctial Year. Thus at mean noon of January 19, 1864, the Equinoctial Time is 302^d·480761, and on January 20 it is 303^d·480761, and so on until March 21^d·761455, when the year terminates, and the fractional part of the day changes. At Mean Noon of March 22, 1864, the Equinoctial Time is 0^d·238545, and this fraction is to be annexed to all the numbers in the column of days, from the period of the change until the equinox of 1865.

At the instant the mean Sun arrives at the mean vernal equinox, it must also be on *some* meridian, and this meridian will then have its equinoctial time corresponding with its mean solar time, each of which will be $0^h 0^m 0^s$, and they will continue to correspond throughout the Equinoctial Year. At the end of the Equinoctial Year, the Sun will have passed this meridian 365 times, and have performed, besides, a certain portion of its 366th diurnal revolution, viz. 0^d·242216; it will, therefore, have arrived at some other meridian, which will now, in its turn, reckon the mean equinoctial and mean solar time from the same point, and remain constant for the year. Thus the meridian, from which the time is reckoned, is shifting its position at the end of every year by 0^d·242216, or 5^h 48^m 47^s·46, to the Westward. Between the vernal equinoxes of 1864 and 1865, this itinerant meridian corresponds to Longitude 0^d·238545 East, or 5^h 43^m 30^s·29, East of Greenwich.

This species of time was first introduced in the Supplement to the Nautical Almanac for 1828, with a very full explanation of its nature and use. It there appears, that the use of Equinoctial Time is to afford an uniform date, which shall be independent of the different meridians, and of all inequalities in the Sun's motion, and shall thus save the necessity, when speaking of the time of any event's happening, of mentioning at the same time the place where it was observed or computed. Thus, it is the same thing to say that a comet passed its perihelion on January 5, 1864, at 5^h 47^m 0^s·0

mean time at Greenwich; at $5^h 56^m 20^s \cdot 6$, mean time at Paris; or at $1863^y 288^d 17^h 19^m 17^s \cdot 75$ equinoctial time; but the former dates make the localities of Greenwich and Paris enter as elements of the expression; whereas the latter expresses the period elapsed since an epoch common to all the world, and identifiable independently of all localities. By this means all ambiguities in the reckoning of time are supposed to be avoided.

To convert mean solar into equinoctial time: To the corresponding Greenwich mean time add the equinoctial time at mean noon of the same day at Greenwich: the sum will be the equinoctial time required. Thus, in the instance of the comet before alluded to, Paris being $9^m 20^s \cdot 6$ East of Greenwich, subtract this from the Paris time and we get $5^h 47^m 0^s \cdot 0$ for the corresponding Greenwich time, to which add $288^d 480^h 76^m$, or $288^d 11^h 32^m 17^s \cdot 75$, the Mean Equinoctial Time at Greenwich mean noon of January 5, and the sum will represent the mean equinoctial time of the comet's passage of its perihelion, viz., $288^d 17^h 19^m 17^s \cdot 75$, from the vernal equinox of the year 1863.

It may here be stated, that in the Supplement to the Nautical Almanac for 1828, the equinoctial time is based on the mean Longitude in Delambre's Solar Tables, and an assumed *invariable* length of the Equinoctial year = $365 \cdot 242264$ mean solar days, with a recommendation that any subsequent improvements in the solar theory be disregarded. An alteration was, however, made in the Nautical Almanac for 1834, and continued to 1856, by substituting Bessel's mean Longitude and his *variable* length of the Equinoctial year. Sir John Herschel has suggested as an approximation to consistency, the correction of the equinoctial times 1827-28 to 1833-34, for the difference between Bessel and Delambre, and the permanent adoption, after 1856, of $365 \cdot 242216$ mean solar days for the length of the Equinoctial year. Between 1834 and 1856, the error arising from the assumed variable length is too minute to require notice, being at most $\cdot 000002$, and generally less.

The corrections of 1827-28 to 1833-34 are as under:—

1827-28	^d +0 ^h 001802
1828-29	001848
1829-30	001894
1830-31	001940
1831-32	001986
1832-33	002032
1833-34	+0 ^h 002078

4. Day of the Year.

The numbers in this column indicate the complete days at mean noon which have elapsed since mean noon of January 1. Mean noon of January 1 is therefore reckoned 0, and 1 is found opposite to that of January 2, because at that instant one entire day has elapsed.

5. Fraction of the Year.

These fractions are the quotients found by dividing the numbers in the preceding column by $365 \cdot 242$. The day and fraction of the year are useful in many Astronomical calculations.

Obliquity of the Ecliptic. (Page 242.)

The apparent inclination of the plane of the Ecliptic to that of the Equator is here given for every 10th day of the year, and continued to January 5 of the following year, marked December 37 for the sake of convenience. This inclination is ever varying, as well from the effect of its mean diminution, as of the nutation of the earth's axis: it is an important element in deducing the positions of the heavenly bodies, with reference to either of the planes, when we know their positions with respect to the other; as, for instance, in computing Right Ascensions and Declinations from Longitudes and Latitudes, and *vice versâ*. If the apparent Obliquity be required for any date not to be found in the Table, it may be obtained by simply taking the proportional part of the variation of the obliquity corresponding to the interval which comprises the given date. Thus, the apparent Obliquity on November 1, 1864, is $23^{\circ} 27' 17'' \cdot 71$. For the variation of the Obliquity in the ten days between October the 27th and November the 6th, is $0'' \cdot 25$, or $0'' \cdot 025$ for one day, and this being multiplied by 5, the number of days between October 27th and November 1st, gives $0'' \cdot 13$, to be *subtracted* from the Obliquity of October the 27th. For most purposes, however, the Obliquity corresponding to the date in the Table nearest to the given date is sufficient, as is evident from an inspection of the quantities.

Sun's Horizontal Parallax. (Page 242.)

The Sun's Horizontal Parallax is the *greatest* angle under which the equatorial semidiameter of the earth would appear at the Sun's centre. It varies inversely as the distance, and the numbers in this column show the values for every tenth day of the year.

The Parallax serves for reducing a solar observation made at the surface of the earth to what it would have been if made at the centre.

Sun's Aberration. (Page 242.)

The progressive motion of light, combined with the motion of the Earth in its orbit, causes the Sun to appear in a different position from that which he really occupies, the true position being always in advance of the apparent. The numbers in this column indicate, for every 10th day of the year, the amount of aberration, or the quantity to be applied to the *true* Longitude of the Sun to obtain the *apparent* Longitude. The Longitudes derived from the solar tables include aberration, and are therefore *apparent* Longitudes, such as are contained in this Ephemeris. If the *true* Longitude of the Sun be wanted, as is the case in finding the longitude of the Earth for the calculation of the Geocentric place of a body, the aberration must be applied with a contrary sign. Thus, on April 10, 1864, at mean noon, by *adding* $20'' \cdot 39$, the amount of aberration, to $20^{\circ} 51' 59'' \cdot 9$, the apparent Longitude of the Sun, we obtain $20^{\circ} 52' 20'' \cdot 3$ for the true Longitude.

Precession in Longitude. (Page 242.)

This column contains the amount of the retrograde motion on the Ecliptic of the point of intersection of the Equator and Ecliptic, or first point of Aries, for each 10th day from January 1, 1864, and is useful for reducing a longitude reckoned from the *Mean* Equinox of any given date to that of January 1, or any other date.

Thus, suppose it were required to refer the true Longitude of the Sun on April 10, 1864, to the mean Equinox of January 1, 1864.

The *apparent* Longitude, from the true equinox of April 10, is $20^{\circ} 51' 59''.9$; the aberration $-20''.39$ and the Equation of the Equinoxes $+12''.60$ being applied with the signs changed, give $20^{\circ} 52' 7''.69$ for the *true* longitude from the mean equinox of April 10; and *subtracting* $13''.76$, the amount of precession, there results $20^{\circ} 51' 53''.93$ for the true Longitude of the Sun on April 10, but reckoned from the mean equinox of January 1, 1864.

Equation of the Equinoxes. (Page 242.)

The Solar and Planetary Tables furnish us with the places of the heavenly bodies referred to the mean equinox; but the true place of the equinox at any time differs from its mean place, by a quantity which is termed the Equation of the Equinoxes; and the numbers here given show the value of the equation for every 10th day of the year. They are to be applied, with their proper signs to the Longitudes reckoned from the mean equinox, to obtain the values with respect to the true equinox.

If the Longitude of a body be given with reference to the true equinox, as in this Ephemeris, and it be required to find its Longitude reckoned from the mean equinox, the equation of the equinoxes must be applied with a contrary sign. Thus, the Longitude of the Sun, reckoned from the true equinox, on April 10, 1864, at mean noon, is $20^{\circ} 51' 59''.9$, and the Equation of the Equinoxes is $+12''.60$; therefore, applying it with the contrary sign, the difference $20^{\circ} 51' 47''.30$, is the Sun's Longitude from the *mean* equinox on that day.

The Equation corresponding to any date not contained in the table, may be obtained in the usual way by interpolation.

The Equation of the Equinoxes in Right Ascension, in a similar manner, enables us to find the *apparent* point of intersection of the Ecliptic on the Equator; and is necessary in computing sidereal time, &c.

Mean Longitude of ♄'s ascending Node. (Page 242.)

This column contains the Mean Longitude of the Moon's ascending Node, at mean noon of every 10th day of the year, reckoned from the mean equinox. The place for any intermediate day is easily found from the daily motion inserted at the foot of the column. The Longitude of the Node is necessary in many calculations; it is sometimes used to determine roughly the Stars which are likely to undergo occultation by the Moon.

Sun's Co-ordinates. (Pages 243 to 250.)

These pages contain for each Greenwich mean noon the Sun's true Geocentric Co-ordinates X, Y, Z; X being measured on a line passing through the true vernal Equinoctial point of the date; Y, on a line in the plane of the Equator, in the direction of the first point of Cancer; and Z, perpendicular to the plane of the Equator, towards the North. To facilitate cometary calculations reductions are given for converting the co-ordinates X, Y, Z, referred to the true equinox of the date, into co-ordinates referred to the mean equinox of January 1, 1864.

Planetary Ephemerides at Mean Noon. (Pages 251 to 300.)

These pages contain the Geocentric and Heliocentric places of the Planets, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, and Neptune.

The Geocentric places are the places of the centres of the planets, as they would appear from the centre of the Earth; the Heliocentric, such as they would appear from the centre of the Sun.

The positions of Mercury, Venus, Mars, Jupiter, and Saturn are given for Greenwich Mean Noon on every day of the year, those of Uranus and Neptune for each fourth day. The Geocentric Right Ascensions and Heliocentric Longitudes, are reckoned from the true equinox. The Geocentric Right Ascensions and Declinations are *affected with aberration*, and are therefore *apparent* positions.

By means of the positions of Venus, Mars, Jupiter, and Saturn, and particularly of Venus and Jupiter, which are frequently visible when the Sun is above the horizon, the Latitude, Time, and Variation of the Compass, may be found with nearly as much facility and accuracy as by the Sun.

The column headed "Meridian Passage" shows the mean time of the Planet's transit over the meridian of Greenwich, and serves to find the mean time of transit over any other meridian. As in the instance of the Moon before noticed, there are some days on which the planets do not pass the meridian; these are indicated by two asterisks (* *). If we refer to page 254, we shall find that Mercury does not pass over the Greenwich meridian on April 1st, and for a similar reason, viz., that the planetary day is here longer than the mean solar day, and commences so near, but previously, to the noon of the 1st, viz., $2^m \cdot 9$, as to want still $0^m \cdot 4$ of its completion at the termination of the 1st day. The planetary day therefore, includes the solar day of April 1st: it begins *before* the solar day and ends *after* it, and the planet cannot arrive at the meridian at any period of it.

Another phenomenon takes place in the case of the planets, which, however, does not occur with the Moon; it is that of two transits on the same day, which arises from the planetary day being sometimes *shorter* than the solar day, commencing *after* and terminating *before* the solar day, and thus falling entirely within it. This cannot be the case with the Moon, because the lunar day is always greater than the solar day. When two transits occur, the times of both are registered, as at page 252, January 25th, where it appears that Mercury passes the Greenwich meridian $6^m \cdot 0$ after mean noon of the 25th, and again at $23^h 56^m \cdot 9$ on the same day, or $3^m \cdot 1$ before the arrival of the following Mean Noon.

The positions of the planets for any time not given in the Ephemeris, and under any other meridian than that of Greenwich, are to be found by interpolation in the usual way. *Example:* Required the Right Ascension and Declination of Mercury at 6^h Mean Time on October 1, 1864, in longitude 30° west of Greenwich; also the time of Mercury's passage over this meridian on the same day. The difference of longitude 2^h *added* (because it is west) to the given time, gives 8^h for the corresponding Greenwich time.

1. *For the Right Ascension.* The Right Ascension on October 1 is $11^h 42^m 42^s \cdot 73$, and on October 2 it is $11^h 42^m 26^s \cdot 53$; the difference $0^m 16^s \cdot 20$, is the variation of the Right Ascension in 24 mean hours; therefore $24^h : 0^m 16^s \cdot 20 :: 8^h : 0^m 5^s \cdot 40$ the proportional part of the variation answering to 8^h; and this proportional part *subtracted* (because the Right Ascensions are decreasing) from $11^h 42^m 42^s \cdot 73$, the Right Ascension at mean noon on October 1, gives $11^h 42^m 37^s \cdot 33$ for the Right Ascension required, that is, on the assumption of invariable first difference; including the effect of second difference, the Right Ascension would be $11^h 42^m 33^s \cdot 24$.

2. *For the Declination.* The Declination on October 1 is N. $1^\circ 33' 57'' \cdot 8$, and on the 2nd it is N. $1^\circ 55' 50'' \cdot 8$, the difference, $21' 53'' \cdot 0$, is the variation in 24

hours ; and the proportional part of this variation for 8^h is $7' 17''.7$, which, *added* to the Declination at noon on the 1st, gives $N. 1^\circ 41' 15''.5$ for the Declination required ; the effect of second difference would be to increase this quantity by $33''.7$.

3. *For the Meridian Passage.* Take the difference of the times of two consecutive transits ; and considering this difference as an acceleration or retardation of the Meridian Passage while the planet has passed over 24^h of geographical longitude, take the proportional part of it, due to the difference of meridians, for a correction to be applied to the Meridian Passage at Greenwich, bearing in mind that in east longitude the passage precedes that at Greenwich, when times are accelerated, and follows it, when they are retarded ; and the contrary in west longitude. In the present case Mercury passes the meridian of Greenwich on October 1 at $22^h 56^m.8$, and on October 2 at $22^h 53^m.2$, the difference is $3^m.6$, therefore $24^h : 3^m.6 :: 2^h : 0^m.3$, the proportional part to be *subtracted* from $22^h 56^m.8$, (because the passages are retarded, and the longitude is west of Greenwich,) which gives $22^h 56^m.5$, mean time at the given place, for the Meridian Passage. Where great accuracy is not required this method will suffice.

Planetary Ephemerides at Transit. (Pages 301 to 324.)

These pages contain the Right Ascension and Declination at Transit over the Meridian at Greenwich, within the limits stated in the Preface to the NAUTICAL ALMANAC for the Year 1861, and are readily reduced to the time of transit over any other meridian not far distant from Greenwich, by means of their Variations in 1 hour of Longitude. Thus : prefix the sign — to the Longitude of the proposed meridian if it be east of Greenwich, but + if it be west, and multiply it by the variation ; the product applied *algebraically* (South Declination being considered as negative) to the transit results for Greenwich, will give those for the proposed meridian. *Example:* Suppose the Right Ascension and Declination of Mercury were required at Vienna on March 5th, 1864. Vienna is east of Greenwich $1^h 5^m 31''.9$, or — $1^h.092$, and the "Variation of Right Ascension in 1 hour of Longitude" on March 5th is $+ 14''.72$: the product of these numbers is — $16''.07$, which, applied to $21^h 48^m 11''.10$, the Transit Right Ascension at Greenwich, gives $21^h 47^m 55''.03$ for that at Vienna. The Variation of the Declination on March 5th is $+ 63''.9$, and the product of $+ 63''.9$ and — $1^h.092$ is — $1' 9''.8$, which applied to S. or — $15^\circ 15' 45''.6$, gives S. $15^\circ 16' 55''.4$ for the Declination at Vienna. Had this example been for March 6 instead of March 5, the variations in 1 hour of Longitude would have been respectively $+ 14''.84$ and $+ 67''.1$, being the mean of those for March 5 and March 7 ; and the products of these and — $1^h.092$ must have been applied to $21^h 54^m 5''.78$ and S. $14^\circ 49' 33''.2$, being the Right Ascension and Declination standing to the right hand and between those on March 5 and March 7.

The "Sid. Time of Sem. pass. Mer." (Sidereal Time of the Semidiameter passing the Meridian,) serves to reduce an observation of the Right Ascension of the limb, to that of the centre, and the "Semidiameter" answers a similar purpose for the Declination.

The "Hor. Par.," or Horizontal Parallax, serves for reducing an observation made at the surface to the centre of the Earth.

Fixed Stars. (Pages 325 to 389.)

In pages 325 to 328 are given the Mean Right Ascensions and Declinations of 147 fixed Stars for Jan. $0^d \cdot 597$, 1864, together with their Annual Variations.

North Declination is distinguished by N., and South Declination by S.

The sign + prefixed to an Annual Variation of Right Ascension indicates that the variation is to be *added to*, and the sign —, that it is to be *subtracted from*, the Right Ascension: also, for Stars having *North* Declination, + signifies *add*, and — *subtract*: but for Stars of *South* Declination, + denotes that the Variation is to be *subtracted from*, and — that it is to be *added to*, the Declination.

*Example * 1.* Required the Mean Right Ascension and Declination of α Tauri or *Aldebaran* on May 30, 1864. The Annual Variation of the Right Ascension is $+ 3^s \cdot 4347$; the Fraction of the year corresponding to May 30, is $\cdot 4107 + \cdot 0011 = \cdot 4118$ (page XX. of May); the product of these numbers ($1^s \cdot 414$) is the proportional part of the annual variation due to the period elapsed since January $0^d \cdot 597$, which *added*, because the sign is +, to the Mean Right Ascension on Jan. $0^d \cdot 597$, *viz.*, $4^h 28^m 7^s \cdot 172$, gives $4^h 28^m 8^s \cdot 586$, for the Mean Right Ascension on May 30. The Annual Variation of the Declination is $+ 7^s \cdot 649$, which, multiplied by $\cdot 4118$ as before, and the product ($3^s \cdot 15$) *added*, because the sign is + and the Declination *North*, to the Mean Declination on Jan. $0^d \cdot 597$ *viz.*, N. $16^\circ 13' 58'' \cdot 31$, gives N. $16^\circ 14' 1'' \cdot 46$, for the Mean Declination required.

Example 2. Required the Mean Right Ascension and Declination of β Ursæ Minoris on June 1, 1864. Here the Annual Variation of Right Ascension is $- 0^s \cdot 2551$, and the fraction of the Year $\cdot 4162 + \cdot 0011 = \cdot 4173$ (page XX. of June); the product ($0^s \cdot 107$) therefore being *subtracted*, because the sign of the Annual Variation is —, from $14^h 51^m 8^s \cdot 372$, the Right Ascension on Jan. $0^d \cdot 597$, gives $14^h 51^m 8^s \cdot 265$, for the Right Ascension on June 1, 1864.

For the Declination, we have the Annual Variation = $- 14'' \cdot 755$, which, multiplied by $\cdot 4173$, gives $6'' \cdot 16$. The Declination being *North*, and the sign of the Variation —, this product must be *subtracted* from N. $74^\circ 42' 39'' \cdot 77$, and the result is N. $74^\circ 42' 33'' \cdot 61$.

Example 3. Required the Mean Declination of α Scorpii or *Antares* on May 30, 1864. The Annual Variation is $- 8^s \cdot 417$, and the fraction of the Year $\cdot 4118$; the product of these numbers ($3^s \cdot 47$) being *added*, because the Declination is *South*, and the sign of the Variation —, to the Declination on Jan. $0^d \cdot 597$, *viz.*, S. $26^\circ 7' 37'' \cdot 20$, the sum, S. $26^\circ 7' 40'' \cdot 67$, is the Declination on May 30, 1864.

Next (page 329) follow Bessel's Formulæ of Reduction; and (pages 330 and 331) a Table for the reduction of Stars, independently of the Constants, in the Catalogue of the British Association, an example of which is given at page 524.

The apparent places of α and δ Ursæ Minoris are given for every day of the year, and those of the remaining 145 Stars for every *tenth* day.

* Similar examples to these have been given in the Nautical Almanacs 1834 to 1863, but the Seaman will find it more convenient to consult pages 332 to 387, from which the Stars' Right Ascensions and Declinations can be obtained with more accuracy by inspection. Thus, in page 345, the Right Ascension of *Aldebaran* on May 30, is $4^h 28^m 8^s \cdot 07$, and the Declination N. $16^\circ 13' 54'' \cdot 1$.

The hours and minutes of Right Ascension, and the degrees and minutes of Declination, are placed at the heads of the columns as constants, and belong equally to all the numbers below them. This arrangement has rendered it necessary in numerous instances, to continue the seconds beyond 60, as the width of the page would not permit of otherwise indicating any change in the minutes. Thus, the apparent Right Ascension of ρ Bootis at page 366, on June 19, 1864, is registered $14^h 25^m 60^s \cdot 74$, and is to be read $14^h 26^m 0^s \cdot 74$. On the same day the Declination of the same Star is registered N. $30^\circ 57' 72'' \cdot 7$, which signifies N. $30^\circ 58' 12'' \cdot 7$.

The small figures on the right hand of the vertical column of seconds represent the differences of the quantities above and below them on the left, or the variation of Right Ascension and Declination in 10 days, and serve to find, by interpolation, the values for an intermediate day. As in the case of the Planets before explained, a Star will sometimes arrive at the meridian twice in one apparent solar day. When this occurs on one of the given dates, the Star's place is registered for each transit, as at page 354, for ϵ Hydræ on July 29; but in other cases the day of the month on which two transits occur is placed opposite to the interval. In these particular instances the Star passes the meridian 11 times in the 10 apparent solar days, and consequently the Right Ascension or Declination at transit on any intermediate day is to be determined by taking $\frac{1}{11}$ th part, instead of $\frac{1}{10}$ th, of the variation in the interval. Thus, at page 348, we find in the instance of ϵ Orionis the figures 13 opposite the interval between June 9 and June 19, indicating that the double transit occurs on June 13, and a difference of $0^s \cdot 11$ opposite to the interval between the seconds belonging to those dates, $\frac{1}{11}$ of which is $\cdot 010$; for the first transit on June 13, we should therefore multiply $\cdot 010$, by the days elapsed since June 9, but for the second and following transits by the days elapsed increased by 1.

When extreme accuracy is required, the apparent places of the 5 Polar Stars demand a further correction, depending on the terms which involve 2ϵ . The apparent places do not include these corrections, on account of the rapid variation of the argument, viz., about 26° in a day, but they are given in a Table at pages 388 and 389, for every degree of the Moon's Longitude, and may be readily applied, agreeably to the precept at the foot of that Table.

Formulae for correcting for daily aberration are given in the Preface.

Moon-Culminating Stars. (Pages 390 to 428.)

Those Stars are denominated Moon-Culminating Stars, which being near the Moon's parallel of Declination, and not differing much from her in Right Ascension, are proper to be observed with the Moon, in order to determine differences of meridians. This is effected by comparing the differences of the observed Right Ascensions of such a Star and the Moon's bright limb at any two meridians. If the Moon had no motion, the difference of her Right Ascension from that of the Star would be constant at all meridians; but in the interval of her transit over two different meridians, her Right Ascension will have varied, and the difference between the two compared differences will exhibit the amount of this variation, which added to the differences of the meridians, shows the angle through which the westerly meridian must revolve before it comes up with the Moon; hence, and knowing the rate of her increase in Right Ascension, the difference of Longitude may be easily obtained.

For the determination of this variation, recourse has hitherto been had to actual observations made at different meridians, because any errors in the computed places

of the Moon and Stars are thereby avoided: and the places were formerly given merely with the view of indicating the times when the observations were to be made. In the present list, however, the Right Ascensions are given with every possible degree of accuracy, so that they may be considered, at least approximately, in the light of corresponding observations made at Greenwich, and be taken to represent the indications of the Greenwich instruments, the same as though they had been actually observed. The traveller has thus an opportunity of rendering his observations immediately available for determining his longitude with considerable accuracy.

The Right Ascension of the Moon's bright limb and Declination of her centre, at the instant of their respective transits at Greenwich, are given for the lower as well as the upper Culmination, *L.* being put to denote the Lower Culmination, and *U.* the Upper Culmination; the Roman numerals indicate the limb of the Moon with reference to its transit over the meridian. The Moon's age at the time of her upper transit, to the nearest tenth of a day, is inserted in the column containing the magnitudes of the Stars.

The numbers in the column "*Var. of ζ 's R.A. in one hour of Long.*" represent the Variation in Right Ascension of the Moon's Limb during the interval of her transit over two meridians, equidistant from that of Greenwich, and *one* hour distant from each other. They have been deduced from the Right Ascensions of the *bright limb*, and therefore include the effect produced by the change of the semidiameter.

They serve to determine the Longitude where the difference of meridians is not very great; but where this difference is considerable, and extreme accuracy is wanted, that variation in Right Ascension should be used which corresponds to the middle of the interval between the observations, which may be readily obtained by interpolation. They also serve to determine the Right Ascension of the bright limb at its transit over any other meridian. Thus: Multiply the difference of longitude between Greenwich and the given meridian, by the variation; and, according as the given meridian is east or west of Greenwich, subtract or add the product to the Right Ascension at Greenwich; the result will be the Right Ascension of the bright limb at transit over the proposed meridian. *Example:* On June 25, 1864, the Right Ascension of the Moon's second limb is $23^{\text{h}} 55^{\text{m}} 23^{\text{s}}.75$, at its upper transit at Greenwich, and the variation for 1 hour of longitude is $137''.08$: Required the Right Ascension of the limb at its upper transit at Paris. Paris is $9^{\text{m}} 20^{\text{s}}.6$, or $0^{\text{h}} 156$, East of Greenwich; therefore, multiplying $137''.08$ by 0.156 , and subtracting the product $21''.38$ from $23^{\text{h}} 55^{\text{m}} 23^{\text{s}}.75$, we have $23^{\text{h}} 55^{\text{m}} 2^{\text{s}}.37$, for the Right Ascension at Paris.

In a similar manner the Declination may be determined at transit over any other meridian not far distant from that of Greenwich, bearing in mind that South Declinations and East Longitudes are to be considered as *negative*. Thus, in the above *Example:* The Moon's Declination at her upper Transit at Greenwich is $\text{N. } 3^{\circ} 30' 30''.0$ and the "*Var. of ζ 's Dec. in 1 hour of Long.*" is $+747''.7$, which, multiplied by $-0^{\text{h}} 156$, gives $-1' 56''.6$, to be applied to $\text{N. } 3^{\circ} 30' 30''.0$, the Declination at the upper transit at Paris is therefore $\text{N. } 3^{\circ} 28' 33''.4$.

Where an asterisk is placed opposite to a Star's name, it is intended to denote that the Star is favourably situated for observing its Declination along with that of the Moon in both Hemispheres, with a view to the accurate determination of the Moon's Parallax.

The numbers in the column entitled "*Sid. Time of ('s Sem. pass. mer.,*" express the Sidereal intervals which the Moon's Semidiameter, at the time of transit at Greenwich, takes in passing the meridian, and therefore serve to determine the Transit of the centre from an observed Transit of either limb.

Eclipses. (Pages 429 to 436.)

These pages contain all the particulars necessary for indicating the times, places, &c. on the Earth where the Eclipses of the Sun and Moon will be visible; also the Elements which have been used in the calculations.

*Elements of Occultations.** (Pages 437 to 447.)

These are:—1. The *Apparent* places at Greenwich Mean Midnight, of the Fixed Stars to the sixth magnitude inclusive, the occultations of which will take place above the horizon at Greenwich.

2. The *Apparent* Places of those Planets and *all* Stars to the fifth magnitude inclusive, the occultations of which will be visible at *some* part of the Earth.

3. The Greenwich Mean Time at which the Moon would, if viewed from the centre of the Earth, appear to have the same Right Ascension as the Star.

4. The difference of Declination and Position of the Moon, as it would appear with respect to the Star at the instant of conjunction in Right Ascension.

5. The parallels of Latitude *beyond* which the Star cannot be occulted by the Moon.

These Elements are useful in the calculation of an Occultation; for being referable to the Moon and Star, as seen from the centre of the Earth, they are independent of geographical position, and serve equally for all places. It is only necessary to apply the difference of longitude from Greenwich to the Greenwich Mean Time of conjunction, to find the time of conjunction at any other meridian; and it is this time to which the positions of the Moon and Star here given will equally correspond.

Thus, the position of the Moon and α Cancri on Sept. 25, 1864, at $21^h 59^m 5^s$ Mean Time at Greenwich, is the position at $22^h 8^m 25^s \cdot 6$ Mean Time at Paris, because Paris is $9^m 20^s \cdot 6$ east of Greenwich.

By Limiting Parallels are to be understood those parallels of latitude beyond which an occultation cannot *possibly* occur.

Suppose an observer situate at a star, and having the Moon between him and the Earth, and that he could see the Moon projected on the Earth's disc; he would observe it moving across the disc from west to east, covering a zone whose breadth would be equal to the apparent diameter of the Moon. Now it is only within the limits of this zone that the Occultation of a Star by the Moon can take place. To all the places through which the boundary lines pass, the Star will appear just to touch the Moon's limb; and that projected parallel of latitude, to which one of the boundary lines is a tangent, is one of the limiting parallels, while the intersection of the other boundary line with the circumference of the Earth's disc determines the other limiting parallel.

* The calculation of the circumstances of an Occultation for any particular place may be made in the manner directed by Mr. WOOLHOUSE in the Appendix to the *Nautical Almanac* for 1836; or approximately, with sufficient accuracy to suit the ordinary purposes of prediction, by Captain SHADWELL's "*Tables for facilitating the approximate prediction of Occultations and Eclipses for any particular place.*" Potter: Poultry, London.

Limiting Parallels are useful to indicate whether at a given conjunction of a Star with the Moon, the positions are likely to produce an occultation in a given latitude, and thus to save considerable labour to the computer.

Thus, suppose from the times of conjunction commencing with Feb. 2, at page 438, it were required to prepare a list of Occultations for Greenwich, whose latitude is $51^{\circ} 28' 38''$ N. On looking down the column of Limiting Parallels we reject at once the first star, because the Limiting Parallels do not comprise the parallel of Greenwich. On Feb. 2 we see that α Scorpii may be occulted to all the parallels of latitude between 62° N. and 1° S., which include that of Greenwich; this Star would therefore be fixed upon for calculation if no other considerations existed to cause its rejection. We observe, however, that the conjunction takes place at $1^{\text{h}} 13^{\text{m}} 40^{\text{s}}$, the intensity of sun-light would therefore prevent its being seen, and it would be rejected in consequence. The next Limiting Parallels having Greenwich between them, are 69° N. and 7° N., opposite α Ophiuchi on the same day, but here the star is below the horizon, as are also others until February 16, on which day γ Orionis may be occulted between the parallels of 90° N. and 38° N.; and on reference to page 448, it will be seen that the phenomenon is visible at Greenwich.

Occultations. (Pages 448 to 450.)

These pages contain a list of the Planets and fixed Stars to the sixth magnitude inclusive, the Occultations of which by the Moon will happen when the objects are above the horizon of Greenwich, together with the Sidereal and Mean Times of the Disappearance and Reappearance, and the points on the circumference of the Moon's image, where the Star, viewed with a telescope that inverts, will disappear and reappear. By "Angle from N. Point" is to be understood the arc included between the Star, when in contact, and the point of intersection of the limb with a circle passing through the North Pole and the centre of the Moon's image; and by "Angle from Vertex," the arc between the Star at contact, and the point where a circle, passing through the zenith and the Moon's centre, intersects the limb. These latter angles will be found very useful in observing Occultations of small stars with a telescope not mounted equatorially; and, for the observation of a reappearance, a knowledge of the angle is absolutely necessary to enable the observer to direct his attention to the point of the Moon's limb where the Star will reappear. In some instances, Occultations have been inserted, which taking place in, or near to, the horizon of Greenwich, are not visible there, but may be visible at places not far distant from Greenwich.

Jupiter's Satellites, Eclipses, &c. (Pages 451 to 470.)

These pages contain the Mean Times of the Eclipses, Occultations, Transits, and Transits of Shadows, of the Satellites of Jupiter, together with diagrams exhibiting the position of each Satellite with respect to the disc of the Planet at the moment of Disappearance or Reappearance, as it will appear in an inverting telescope. These diagrams have been laid down from calculations made for the eclipse nearest to the middle of each month; but they will serve very well for the whole of the month, *except near opposition*, the change in the position of Jupiter and his Shadow in the interval being too small to be appreciable by the eye, as is evident by comparing the Phases for any two successive months. All the Eclipses which happen when Jupiter is 8° above and the Sun 8° below the horizon of Greenwich, are marked with an

asterisk to indicate that they are visible at that place; and those which happen when Jupiter is above, and the Sun below the horizon, are marked with a dagger, *as*, under very favourable circumstances, they may also be observed.

"D." denotes the instant of the disappearance of the Satellite, by entering into the shadow of Jupiter; and "R." the instant of its reappearance at coming out of the shadow. They generally happen when the Satellite is apparently at some distance from the body of Jupiter, except near the opposition of Jupiter to the Sun, when the eclipse takes place near to the body of the planet. Before the opposition, the Disappearances and Reappearances happen on the Western side, but after opposition on the Eastern side, of the planet: with an inverting telescope, however, the appearances will be directly the contrary. Before the opposition, the Disappearances only of the first Satellite are visible: and after the opposition, the Reappearances only. It is seldom, also, that the Disappearance and Reappearance of the second Satellite can be observed at the same eclipse; but both phenomena are generally visible with the third and fourth Satellites.

To find the time at which the Disappearance or Reappearance of any of the Satellites will take place under any other meridian than that of Greenwich, it is merely necessary to *add* the difference of longitude (*in time*) to the time of the phenomenon at Greenwich, if the meridian be *east* of Greenwich, or to *subtract* if it be *west*, and the sum or difference will be the time required. But this determines only the instant of the occurrence of the phenomenon: Jupiter may be below the horizon at this time, or he may be above it, and the intensity of sun-light, or even the brightness of twilight, may be such as to render the Satellites invisible: it is therefore necessary to ascertain the position of the Sun and Jupiter, with respect to the horizon, at the time of the phenomenon: this may be readily accomplished by means of a celestial globe, or near enough for the purpose, by finding the times of rising and setting of the objects, with the assistance of a table of semidiurnal arcs.

The Eclipses of Jupiter's Satellites, especially of the first, afford us, perhaps, the readiest means of determining the longitude; all that is necessary to be known being the exact time of observation: the difference between this time and the time at Greenwich, shows the difference of longitude at once, and it is *east* or *west* of Greenwich, according as the time of observation is *greater* or *less* than the Greenwich time.

Suppose the Disappearance of Jupiter's first Satellite to be observed on January 11, 1864, at Paris at $18^h 39^m 20^{\cdot}1$ Mean Time at that place: by reference to page 451, it appears that the Disappearance will take place at Greenwich at $18^h 29^m 59^{\cdot}5$ Greenwich Mean Time; the difference $9^m 20^{\cdot}6$, is the difference of longitude between Greenwich and Paris; and because the Paris time is greater than that at Greenwich, we infer that Paris is to the east of Greenwich.

Independent of defects in the tables, there are difficulties attending the observation of these phenomena which unfit them for *accurate* determinations of longitude. Different telescopes give different results; and care should be taken to have recourse to those corresponding observations which have been made under circumstances the most similar, and particularly with telescopes of the same quality and power. When extreme accuracy is not required, the Eclipses of the Satellites will always afford a good approximation towards the difference of meridians, and observations of them should on no account be neglected, especially when the Disappearance and Reappearance of the same Satellite are both visible.

The times of Occultation and Transit, are only approximate. They are inserted in order to apprise Astronomers when they are about to happen, as observations of them may tend to improve the Tables of the Satellites. The instruments required to observe them with anything like precision will preclude the possibility of their ever becoming available at sea.

An asterisk signifies that the phenomenon is visible at Greenwich, and a dagger that the phenomenon *may be* visible under favourable circumstances, the limits in either case being the same as those adopted for the eclipses. "D." denotes the disappearance of the Satellite behind the disc of Jupiter, and "R." its reappearance; "I." signifies the ingress, or beginning of a transit of a Satellite, or its shadow, across the disc of Jupiter, and "E." the egress, or termination.

Jupiter's Satellites', Configurations (Pages 471 to 480).

In addition to the explanation given at the foot of the page, it may be remarked, that when two Satellites are in or near conjunction, instead of the usual symbol (\odot), it has been thought better to place one above the other, without regard to their actual latitudes, but merely to distinguish them in their relation of *upper* and *lower*.

The Satellites are in the superior parts of their orbits, or have Jupiter between them and the Earth, when they are moving from West to East, or towards the right-hand of the page; but they are in the inferior parts of their orbits, or between the Earth and Jupiter, when they are moving from East to West, or towards the left-hand: in the former case Eclipses and Occultations occur, and in the latter Transits of the Satellites and their Shadows.

If an inverting telescope be directed towards Jupiter on April 2, 1864, at 14^h 30^m mean time, the Satellites will appear to an observer at Greenwich in the positions as laid down in the table. The 1st, 2nd, and 3rd Satellites, which are *really* to the left of the planet, will appear to the right of it; and the 4th, which is *really* to the right, will appear to be to the left.

West and *East*, at the head of the page, are inserted to show the positions of the Satellites with respect to Jupiter, as they would appear in a telescope that does *not* invert. Jupiter being always to the south of the zenith of Greenwich, the Satellites which are here laid down on the left of Jupiter would appear to the *West*, and those on the right-hand to the *East* of the planet.

As regards their positions to the east or west, the page viewed directly, exhibits the Satellites in an inverted order; but if the leaf be turned over, and the page viewed from the other side, they will appear in their real positions. The simplest mode of changing the position of a Satellite from apparent to real, and *vice versa*, is to draw a line from the Satellite through Jupiter's centre, and to place the Satellite upon this line at the same distance from the centre as before, only on the opposite side. If this operation be performed upon the Configurations as laid down in this volume, the Satellites will be reduced to their real positions.

As the Configurations are given for *mean astronomical time*, which agrees with *civil time* only from 0^h to 12^h, or from noon to midnight, when the time exceeds 12^h the excess will indicate the civil time of the succeeding day of the month.

Thus in April, 1864, the Configurations are given for 14^h 30^m mean time, but the 14th hour from noon is the same as the 2nd hour from the following midnight,

when a new civil day has commenced. The appearances, therefore, relate to 2^h 30^m A.M. of the day following, according to the common mode of reckoning time; that is, the Configurations at 14^h 30^m on April the 26th relate to 2^h 30^m A.M. on April the 27th.

The Configurations enable an observer to distinguish the Satellites from each other, and from Stars in the vicinity of Jupiter.

Phenomena. (Pages 481 to 483.)

In these are given the conjunctions in Right Ascension of the Planets with the Moon and with each other, and the conjunctions in Right Ascension and Declination of the Planets with certain Stars; also the times when the Planets are in those parts of their orbits most favourable for observation, with a view to the more accurate determination of their elements; and other notices, chiefly of use to the astronomer.

Saturn's Ring. (Page 484.)

In this page are given the quantities which enable us to determine the position of the Ring of Saturn at intervals of 20 days throughout the year, and whether it be visible or not. The value of p shows the position of the minor axis of the Ring with respect to a circle of declination, those of a', b', a'', b'' , the Ring's apparent magnitude, and a comparison of those of l and l' , its visibility or otherwise. For the plane of the Ring to be *visible*, it is necessary that the Sun and the Earth should be elevated on the same side of it, which is the case throughout the year, 1864. The circumstances which determine the *invisibility* of the Ring are, 1st, when its plane passes through the centre of the Sun, or $l' = 0$; 2nd, when it passes through the centre of the Earth, or $l = 0$, and at this time b' and b'' , also $= 0$; 3rd, when the Sun and Earth are on different sides of the plane of the Ring, for the Earth in this case will have the unilluminated side of the Ring turned towards it.

Moon's Libration, &c. (Page 485.)

This page contains the *Approximate Mean Time of the greatest Libration of the Moon's Apparent Disc*; and the *Illuminated portion of the Discs of Venus and Mars* at the middle of each month.

Opposition of Mars. (Pages 486 to 491.)

These pages contain an Ephemeris of Stars to be observed with the Planet near the opposition in 1864, with a view to the determination of its parallax from corresponding observations of the differences of declination between the planet and stars made at places differing considerably in latitude, such as the observatories in the northern and southern hemispheres.

The Stars are selected in such manner that there may be always sufficient intervals of time between their transits and those of the planet, to enable the observer to read off the divisions of the circle or micrometer; except in some cases, when the star, not distant above five or six minutes in declination, will pass through the field with the planet, the telescope remaining fixed, and when their difference of declination may be obtained by means of a micrometer.

The positions of Mars are the apparent geocentric places of the planet's centre, which, with the semidiameter and horizontal parallax, have been reprinted from pages 313 and 314.

It is desirable that, when both limbs of Mars cannot be conveniently observed on the same day, the northern limb should be observed on the *odd* days, and the southern limb on the *even* days of the month. This is denoted by the letters N. and S. inserted in the column of magnitudes.

Those astronomers who are possessed of good equatorial instruments, may take repeated measures of the differences of declination between the selected stars and the planet on the same night, noting the times at which the observations are made.

Tides. (Pages 492 to 495.)

The Mean Time of High Water at London Bridge is here given for every day of the year, on the assumption that the time of high water on full and change days, or the *Establishment of the Port*, is $2^h 7^m$. The first high tide which happens after Mean Noon of any day is inserted in the 1st column, and the second in the 2nd column. Where a line (—) is inserted, it indicates that there is only *one* high tide on that day. Thus on January 6 there is only one high tide: it occurs at $11^h 44^m$, but the succeeding high tide does not take place until 15^m after mean noon of January 7.

The times of high water at full and change of the Moon, as given at pages 494 and 495, are reckoned from *Apparent Noon*: they represent the *Establishments of the Ports*, that is, the *actual times* of High Water *when the Moon passes the meridian at the same time as the Sun*; or the *intervals* between the times of Transit of the Moon and the times of High Water *on full and change days*. They serve to determine the time of high water on any other day at those places in the usual manner.

This Table has again (August 1860) been revised by the Admiralty Hydrographic Office.

Tables. (Pages 496 to 510.)

In page 496 is given a Table showing the Correction required on account of Second Differences in finding the Greenwich Time corresponding to a reduced Lunar Distance.

The use of this Table has been sufficiently explained, by the Examples given at page 521.

In pages 497 to 499 are given Tables for determining the Latitude by Observations of the Pole Star out of the Meridian. The method of using them is as follows:

From the observed altitude, when corrected for the error of the instrument, refraction, and dip of the horizon, subtract $1'$.

Reduce the Mean Time of Observation at the place to the corresponding Sidereal Time, by the Table given at page 500.—(See *Tables of Time Equivalents*, following this article.)

With the Sidereal Time found, take out the *first correction*, with its proper sign. If the sign be +, the correction must be *added* to the reduced altitude; but if it be —, it must be *subtracted*; in either case the result will give an Approximate Latitude.

With the Altitude and Sidereal Time of observation, take out the *second correction*; and with the day of the month and the same Sidereal time, take out the *third correction*. These two corrections *added* to the Approximate Latitude, will give the Latitude of the place.

Example. On March 6, 1864, in Longitude 37° W. at $7^{\text{h}} 43^{\text{m}} 35^{\text{s}}$ Mean Time, suppose the altitude of the Pole Star, when corrected for the error of the instrument, refraction, and dip of the horizon, to be $46^{\circ} 17' 28''$: Required the latitude.

Mean Time	- - - - -	^h ^m ^s 7 43 35
Diff. Long. (37°) in time	- - - - -	2 28 0
Greenwich Mean Time	- - - - -	<u>10 11 35</u>
Sidereal Time at Greenwich Mean Noon	- - - - -	^h ^m ^s 22 57 53
Mean Time at Place	- - - - -	7 43 35
Acceleration (Tab. page 500) for $10^{\text{h}} 12^{\text{m}}$	- - - - -	<u>1 41</u>
Sidereal Time of Observation	- - - - -	<u>6 43 9</u>
Corrected Altitude	- - - - -	[°] ['] ^{''} 46 17 28
Subtract	- - - - -	<u>1 0</u>
Reduced Altitude	- - - - -	46 16 28
With Argument $6^{\text{h}} 43^{\text{m}} 9^{\text{s}}$, First Correction	- - - - -	<u>0 9 34</u>
Approximate Latitude	- - - - -	46 6 54
Arguments, $46^{\circ} 17'$ $6^{\text{h}} 43^{\text{m}}$	} Second Correction	+ 1 5
Arguments, March 6, 1864. $6^{\text{h}} 43^{\text{m}}$		+ 1 3
Latitude of the place	- - - - -	<u>N. 46 9 2</u>

The *Tables of Time Equivalents*, given at pages 500 to 503, are useful for converting Mean Time into Sidereal Time, and Sidereal into Mean Time, agreeably to the example annexed to each table. They will serve also for Tables of Acceleration and Retardation, by taking the difference between each argument and its equivalent. Thus, in the Table at pages 500 and 501, the *excess* of the sidereal time equivalents above the arguments of mean time shows the *acceleration* of sidereal on mean solar intervals; and in the Table at pages 502 and 503, the *defect* of the mean time equivalents, as compared with the arguments of sidereal time, indicates the *retardation* of mean on sidereal intervals.

The concluding Table, at pages 504 to 510, contains a revised list of the *Latitudes and Longitudes of the principal Public and Private Observatories*.

